

THE LARYNGOSCOPE.

VOL. XLIII

JULY, 1933.

No. 7

VALUE OF HIGH FREQUENCY CURRENTS IN NASAL CONDITIONS, WITH PROBABLE BENEFITS IN GASTROINTESTINAL DISTURBANCES.*

DR. LEE COHEN, Baltimore.

The advance made in intranasal and sinus surgery during the past three decades has indeed been tremendous. Through the various operations which have been developed and perfected, it is now possible to correct malformation of the bony walls which obstruct free nasal breathing and cause susceptibility to recurrent colds, as well as to infections of the deeper respiratory tract. Purulent infections of one or more of the accessory nasal sinuses, so often foci of infection, can in the vast majority of cases be completely cured by one or more operations. Some cases, either through long neglect or faulty management, having involved all the sinuses, reach such a state of chronicity as to resist all intranasal surgery, and we are forced to the more radical method of external approach. These are the cases responsible for the expression so often heard from the laity, and some physicians as well, "Once a sinusitis always a sinusitis."

Brilliant as have been the results of surgery, however, all of us are familiar with the patient who travels from one rhinologist

*Read before the Baltimore City Medical Society, Oct. 21, 1932.

Editor's Note: This ms. received in Laryngoscope Office and accepted for publication October 25, 1932.

to another in search of relief from obstructed breathing, headaches, recurrent colds or some other condition which has not been relieved by one or more surgical procedures to which he has been subjected. Many of these cases are referred to us by the internist or gastroenterologist, who wishes to learn what bearing the nose and throat condition may have on an existing malady in his field. It has, therefore, long been apparent that, for the relief of many conditions involving the soft tissues within the nose, such as intumescent and hypertrophic rhinitis and general hyperplasia of the mucous and submucous tissues, some measure of relief other than surgery alone must be found.

It is in these hypertrophic conditions that an excessive amount of mucus or mucopus is secreted and, dripping through the posterior nares into the throat, finds its way into the stomach and gastrointestinal tract. Just what influence this excess of alkaline mucus has in the causation of stomach disturbances can better be evaluated by the internist and gastroenterologist, but I have been told by many of them of its harmful effects.

Likewise in hypersensitive conditions, such as hydrorrhea, rose cold and hay fever—the so-called allergic diseases—surgery has utterly failed to bring about the desired relief. It is then plainly evident that some method of treatment must be found which will so lower the sensitivity of the nasal mucosa as to permit exposure to the causal agencies, without provoking attacks. Otherwise many of these subjects are made so miserable as to be unfit for their usual activities, and must either seek relief through climatic changes or continue to suffer.

Immunotherapy, now being used extensively, may be said to give relief in many cases, but since its effect lasts but one season it must be repeated each year. Also, many patients find the tri-weekly or daily injection over a period of weeks a great trial, and some refuse to continue with it.

About two years ago it occurred to me that in the high frequency current we might have an agency which could, either alone or together, with a possibly needed surgical procedure, obtain some results for us in many, if not all, of these difficult conditions. A search of the literature revealed that but little use had been made of the high frequency current within the nasal cavities, except in malignant diseases of the antrum and tumors

of the nasopharynx and nose. For these malignant conditions the coagulating or destructive current only is employed.

For nonmalignant conditions within the nose the destructive current has but limited application, viz., in hyperplastic ethmoiditis where polypi tend to recur repeatedly after surgical removal. Because of the narrowness of the nasal field, danger of the spark jumping to adjacent nondiseased tissues is such that it must be used with caution. Then, too, the possibility of too deep a penetration, which might cause necrosis of the thin underlying bone of base of the skull and a subsequent intracranial complication, must be borne in mind. However, with properly insulated electrodes, accurate gauging of the currents and foot switch control, it is amazing with what precision and safety one may proceed with the destruction of as much or as little tissue as the case may require.

We have been successful in permanently curing a number of cases of hyperplastic ethmoiditis in which surgical methods alone had, over a period of years, repeatedly failed to prevent the recurrence of multiple polypi.

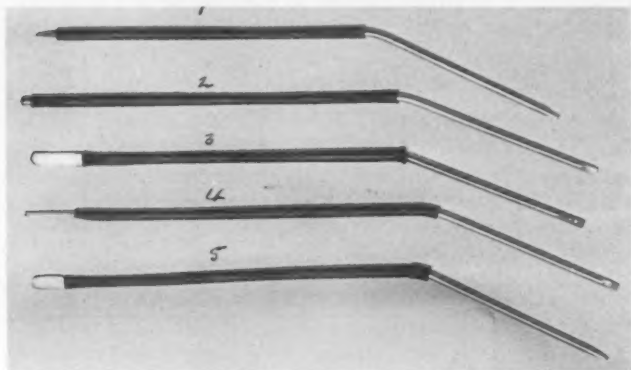
Surgical diathermy, through the intense heat it delivers to the tissues by virtue of the type of electrodes employed (a large flat electrode for the inactive and a small pointed one for the active), coagulates the blood and lymph stream, as well as the tissues immediately surrounding these vessels, and causes complete destruction of the area treated, whether it be normal or diseased. A current of 2500 to 3000 milliamperes is necessary for this purpose.

Medical diathermy, i. e., currents of from 300 to 500 milliamperes, delivered through two large flat electrodes of equal size, in my experience, has but limited application in nose and throat diseases, although Dan McKenzie claims to have relieved head pains induced by congestive sinus conditions. It is contraindicated, however, wherever pus is retained in the sinuses under pressure.

The type of current to which I am especially desirous of calling your attention, and which to my mind offers such possibilities for the future, in treatment of troublesome nasal conditions, is neither the medical nor surgical diathermy, but in strength of current and its effect upon the tissues, occupies an intermediate position between the two. It requires a large flat elec-

trode, 6 x 8 inches, on the patient's back, and a specially constructed smaller flat electrode, not less than 1/32-inch thick, 3/8-inch long and 1/16-inch wide, for intranasal application. This current, as well as the electrode, was first used and described by Doane, but I have made modifications of current and the shape and size of electrodes to suit arising conditions. The electrodes are shown below.

In just what manner the effect of this current is brought about is still somewhat problematical. According to Cumberbatch, in referring to medical diathermy, by accelerating the blood and



lymph currents, absorption of inflammatory products is promoted by it, and local congestion relieved. McKenzie states that a more specific action is claimed for it, viz., "It kills micro-organisms of a low lethal temperature, among which are included pneumococci and diphtheria bacilli commonly present in the nose and throat. The local effects, however, seem to be due to heating of the tissues, though a belief, which can only be a surmise, that the current produces a molecular massage of the tissues through which it passes, has been expressed." In any case, because of the character of the electrodes and the strength of current employed, surgically speaking, it is nondestructive in nature, although it does produce shrinkage of blood and lymph spaces with subsequent fibrosis. This effect is produced, however, without destruction of the vitally necessary delicate mucous membrane or its glandular parts.

It would seem that the current as we use it, with the electrodes described, must bring about an effect on the tissues similar to the medical diathermy, only to a more intense degree because of the stronger current employed. In fact, in some instances of marked tissue hypertrophy, it is even advisable that the current be sufficiently strong to cause a very mild superficial destruction, indicated by a greater pallor of the surface treated.

The Fischer machine, which we use, is equipped for the active pole not only with the high and low voltage stops found in the usual high frequency machine, but also with a third stop medium voltage. This medium stop furnishes a current which so far is the closest approach to the ideal for our purpose. The rheostat is set at 0 to 5, and the spark-gap changed so that the milliamperemeter, with the active pole shorted, should read 500 to 1500 when applied to the soft tissues over the septum, and 1500 to 2000 for that over the turbinates.

Because of the possibility of damage to the underlying cartilage, the length of exposure on the septal tissues must also be shortened up to 5 seconds, but may be greater up to 10 seconds, on the thicker tissues over the turbinates. While it is permissible to apply current to the turbinal tissues of both sides of the nose at one sitting, when pressed for time, this should never be done to the septum for fear of possible damage to the nutrition of the underlying bone or cartilage.

Local anesthetic only is employed in this work, and as long as the active electrode is held in firm, intimate contact with the tissues, so that sparking cannot occur, no discomfort is experienced by the patient. Only when the electrode is applied to the anterior end of the lower turbinate a slight shock may at times be felt in the teeth, especially in those which have been filled. It is an office procedure, and does not incapacitate the patient in the least.

We usually proceed as follows: After the nose has been thoroughly anesthetized, a large inactive electrode of block tin, 6 x 8 inches, is placed on the back of the patient between the scapulae. The active nasal electrode is then placed upon the soft tissue of the lower turbinate and held in intimate contact. With the foot switch the circuit is completed, and a current of 2000 milliamperes is allowed to pass through the tissues for about ten sec-

onds—or until we count ten. The circuit is now broken and the nasal electrode placed upon another area, and so on until it has been applied to the entire soft tissue of the turbinate. The same procedure is carried out, when necessary, upon the tissue of the middle turbinate. The rheostat is now changed, so that less current (about 1500 milliamperes) is applied in the same manner to all intumescent and hyperplastic tissue covering the septum, on the same side of the nose. A week later the same procedure is followed upon the other side.

Immediately following the application of the current the nose is douched with warm saline solution, to remove any anesthetic remaining, and an oil spray applied. The patient is also given a mild ephedrin spray, to be used several times daily in the home.

Upon the application of the current, the mucous membrane appears at once to be somewhat paler than normal. In a few hours the tissues treated swell moderately and there is produced the obstructive sensation and other symptoms of a mild cold. This swelling disappears in from forty-eight to seventy-two hours, enabling the subject to breathe quite freely and restoring a feeling of comfort and well being. Not uncommonly, the day following treatment, the surface is covered by a thick white coagulum of lymph, which when present may obstruct breathing. This may be separated with ease, however, from the underlying tissues, on use of the suction tube or pair of nasal forceps, without leaving any bleeding surface.

Within a week the patient is quite comfortable, with nasal breathing greatly improved from the shrinkage of the tissues induced by the current. One application on each side is rarely sufficient, but generally two, at intervals of one to six weeks, suffice to bring about the desired amount of tissue shrinkage. Patients who have been subject to recurrent colds and who have complained of postnasal discharge and attacks of sneezing due to hypersensitive membranes have expressed very great satisfaction from the relief of these symptoms, as well as from the improvement in nasal breathing. Other patients with a lowered tone of resistance and a mild leukocytosis have, in a month or two after treatment, gained in weight, and have in every way shown an improved bodily tone.

Among those patients treated and relieved have been dozens with simple, hypertrophic and intumescent rhinitis, excessive nasal discharge, and a susceptibility to recurrent colds. A num-

ber of individuals with suppurative sinusitis, who through surgical measures had been freed from pus, continued to have soft tissue swelling in the nose, with impaired breathing, until treated with this high frequency current. Others, with septal deflections which had been corrected by submucous resection, still experienced difficulty in breathing through the nose, with attacks of sneezing, until the current was applied to the intumescent soft tissues over the septal tubercle and the lower turbinates.

Four cases who the year round were victims of severe attacks of hydrorrhea on inhaling dust from orris root, face or tooth powder, and a fifth case, a laboratory worker in whom the attacks were so severe as to compel cessation of his work, were amazingly relieved by two treatments on each side of the nose. In this latter case intranasal surgery alone had failed to bring about the desired result.

Two cases of bronchial asthma associated with ethmoiditis and nasal polypi, which had been corrected surgically, were relieved of the asthma only after having been treated with the high frequency current. Two other cases treated, one a child age 9 years and the other a woman in the early fifties, received little or no relief from asthma.

Four rose cold and hay fever patients have thus far been treated. Two young men in the twenties, who for several years have had rose cold in June and hay fever in August, were treated last June for the first time during the height of the rose cold attack. The turbinates of both sides of the nose were treated at one sitting. Within one week thereafter all symptoms of rose cold had subsided, and nasal breathing was comfortable. Nevertheless, following our routine, the septal tissue was treated later. They also went through the hay fever season, just past, without their usual attacks. The other two cases, young women in the twenties, both of whom had been tested and found sensitive to every known agency which causes hay fever, did not, after two treatments to each side of the nose, experience relief from their hay fever this season. These two, showing the highest degree of sensitivity, we expect to give further treatment, and still hope for results next hay fever period.

Another patient, male, age 53 years of age, had suffered for many years with hay fever. Five years before consulting us he had undergone extensive intranasal surgery for the cure of hyper-

plastic ethmoiditis and antrum suppuration. Since these operations each fall and winter he had such alarming attacks of spasmodic asthma that he was obliged to go to Florida each year. There his attacks were much milder, but they still continued. When seen by us, Nov. 9, 1931, both ethmoidal regions were filled with hyperplastic tissue and polypi. He was then suffering such severe attacks of asthma as to require four or five hypos of adrenalin in twenty-four hours, and frequently one or more hypos of morphine at night.

On Nov. 16, under local anesthesia, the right ethmoidal region was cleared entirely of hyperplastic tissue by surgical measures. Then to the entire surface from which this tissue was removed a nondestructive high frequency current of 2000 milliamperes was applied, including at the same time both lower turbinates, which were hypertrophied. To the septal tubercle on this same right side, which was markedly intumescent, nondestructive current of 1500 milliamperes was applied.

A week later, on Nov. 23, the left ethmoidal region was treated in the same manner, both surgically and with the high frequency current.

Healing of the right side was perfect, but the left side, on Dec. 16, showed a recurrence of some hyperplastic tissue in the posterior ethmoidal cells and about the orifice of the sphenoid. After the surgical removal of this tissue, we felt that more strenuous measures were necessary. The underlying surface was, therefore, thoroughly seared with the destructive coagulating current of 2700 milliamperes. From that time on not a vestige of hyperplastic tissue has developed on either side of the nose.

The patient was physically so exhausted from his asthmatic attacks that on Jan. 4 he left for Florida. On his return to Baltimore, April 8, he reported that during his stay in Florida he had been entirely free from asthma, and had rapidly gained in strength and weight. He has been observed but three or four times since April 8 and at the present time he reports not only entire freedom from asthmatic attacks, but that for the first time in five years he had no symptoms of hay fever whatsoever, and that nasal breathing is entirely free.

In all patients who received high frequency treatment during the last two years the results have been so satisfactory, excepting the two asthma and two hay fever patients mentioned, that

we feel very much encouraged, and have high hopes that in a future report we may show even more convincing evidence of the efficacy of this type of high frequency current in the cure of nasal conditions. Especially are we hopeful of its value in the treatment of hay fever and other allergic nasal conditions, the cause of so much suffering.

In presenting this subject, although my enthusiasm is far greater than the report might indicate, I have purposely refrained from making any extravagant claims, but trust that other men working in this field may try out the method, so that in the near future their results will confirm our findings.

Since writing this paper a reprint was sent me by H. L. Sinskey of a paper read last spring, before the Otological Section of this Society, which, owing to my absence from the city, I had not the pleasure of hearing. Many excellent results were reported by him, and the technique he describes is very similar to that developed by me. While I concur heartily with him in principle, I fear I cannot agree that "chronic sinusitis, involving frontal, sphenoid, ethmoid and antrum," can be cured by any method without some surgery, if this he meant to imply, nor can I make any claim for results from this method in the treatment of atrophic rhinitis.

CONCLUSIONS.

1. We have in this type of high frequency current an agency which shrinks intumescent and hypertrophied soft tissues within the nose, without destroying them, forming scar tissue or in any way interfering with the normal nasal function.

2. Through its effect on the glandular structure, it reduces excessive mucus formation with its probable detrimental effect on the gastrointestinal tract.

3. It lowers the sensitivity of the nasal mucous membrane, reducing susceptibility to the common cold, excessive sneezing and attacks of hydrorrhea.

4. Likewise, through this same effect upon the nasal mucous membrane, it has been effective in abating, at least for this season, a limited number of cases of rose cold, hay fever and spasmodic asthma. It does not seem unreasonable to hope, therefore, that in the high frequency current we may possess an

agency of great potential value for the permanent relief of the so-called allergic diseases.

5. While it cannot take the place of surgery in the correction of intranasal bony wall deformities and malpositions, nor in the drainage of suppurative sinuses, it is an invaluable adjunct to surgery in the complete cure of such conditions; also in the prevention of recurrent attacks of sinusitis.

6. Not only is this a measure of great worth in the nose and throat but may prove extremely effective as a prophylaxis in the unlimited field of internal medicine.

REFERENCES.

1. MCKENZIE, DAN: Diathermy in Otolaryngology. MacMillan & Co., 1930.
2. DOANE, B. L.: Turbinate Electrode. *Chicago Eye, Ear, Nose and Throat Mon.*, March, 1927.
3. CUMBERBATCH, E. P.: Diathermy. 2nd Ed., London, 1927.
4. SINSKY, H. L.: Turbinate Shrinkage by High Frequency. *Amer. Jour. Phys. Ther.*, July, 1922; *Eye, Ear, Nose and Throat Mon.*, Aug., 1932.

1820 Eutaw Place.

VASOMOTOR RHINITIS.*†

DR. ABRAHAM TRASOFF, Philadelphia.

Seasonal hay fever has been recognized as a local manifestation of a constitutional disturbance and treatment therefore has since been directed towards the constitutional factor, rather than the local symptoms.

Quite different is the attitude of a great many of the profession, especially the rhinologists, towards the condition named, vasomotor rhinitis, or perennial hay fever, a first cousin if not a much closer relative of seasonal hay fever.

A great deal has been written on this subject by many investigators in the field of allergy. My personal experience with a great number of these patients, as well as with a few rhinologists, who even to this day are unwilling to accept hypersensitiveness as the underlying cause in this group of patients, prompted me to bring this subject before you tonight.

WHAT IS VASOMOTOR RHINITIS?

In the light of the present day knowledge it is a manifestation of hypersensitiveness of the mucous membranes of the upper respiratory tract characterized by sneezing and coryza alternating with periods of nasal blockage associated with itching of the nose and palate, coming on in paroxysms, usually more frequent in the morning or after a meal; not limited to any particular season of the year and aggravated by exposure to various substances.

The offending substance may be an inhalant, usually house dust, feathers, orris root or insecticides. 2. Any ingested food, the most frequent offenders being wheat, milk, eggs, chocolate, tomatoes, string beans, etc. 3. Drugs; ipecac, aspirin, quinine, methyl salicylate, caroid, lycopodium.

Many substances are being employed in our modern industries which complicate matters and make it difficult to determine the

*From the Department of Allergy, Service of Dr. A. I. Rubenstone, Mt. Sinai Hospital, Philadelphia, Pa.

†Read before the Southeast Branch of the Philadelphia County Medical Society, Jan. 8, 1931.

Editor's Note: This ms. received in Laryngoscope Office and accepted for publication, Oct. 27, 1932.

offending allergen. A knowledge of these facts is necessary in order to eliminate these substances from the patient's environment.

Boxwood is a constituent of jeweler's dust, pyrethrum is a frequent constituent of moth protecting powders; orris root, rice powder and cornstarch powder are found in cosmetic powder. Rabbit hair is being used in the manufacture of some toys. Goat hair and rabbit hair are also being extensively used as substitutes for feathers and in overstuffed furniture and automobile upholstery. Castor bean is a constituent of fertilizer.

The symptoms previously mentioned recur with a certain regularity and the patients are said to suffer from frequent *colds in the head*. They frequently visit the rhinolaryngologist, who at times finds a deflected septum, a spur, hypertrophied turbinates, polyps, etc. He transilluminates them and finds suggestive cloudiness of the frontal and maxillary sinuses, and when the Roentgenologist reports confirmative evidence of sinus pathology, whether with or without lipiodol injection, surgery is being strongly advocated and resorted to unless the patient objects—not mentioning such minor procedures as antral puncture, sphenoid lavage, etc. The result of all this treatment will be *nil* if after operation the patient is again exposed to those substances to which he is sensitive. I have personally seen three patients who had fourteen nasal operations within a period of three and one-half years with definite aggravation of symptoms after the operations.

Now, granted that nasal pathology exists; what relation has it to vasomotor rhinitis? Is it the primary condition or a part and parcel of the allergic state?

In a symposium on allergy before the American Laryngological Association, Hasting¹ stresses the fact that the paranasal sinus infections are secondary to and not the cause of hay fever and asthma.

Tobey² suggests three hypotheses to explain the relation of sinusitis to allergy: 1. That it, *per se*, may be the cause of hay fever and asthma. 2. That the pathologic nasal condition is due to the same cause as the allergic condition, and may be considered a part of allergy. 3. That the sinus infection results in greater permeability of the toxins that cause the allergic state.

In my personal experience while I have at times seen wonderful results in asthmatics following nasal surgery, I have also seen over and over again, radical maxillary and ethmoid operations, turbinectomies and what not performed on patients, who as soon as they

return to their homes, the asthmatic seizures recur just as severely as before their operation.

The late Ross H. Skillern,³ in discussing certain forms of chronic sinusitis, gives the cause of chronicity as "interference with normal aeration and drainage." He subdivides the causes into natural, which consists chiefly of anatomic abnormalities, and acquired. Under the latter he mentions repeated attacks of coryza causing a thickening of the mucosa with gradual interference with drainage and ventilation. The inhibition of the movements of the cilia prevents the removal from the sinus cavities of the invading microorganisms, hence secondary infections.

What factors other than allergic are more likely to produce such changes in the nasal mucosa and accessory sinuses?

Proetz⁴ demonstrated thickening of the maxillary sinuses within the course of a few hours following exposure to feathers in a feather sensitive patient. He also quotes J. C. Beck, who observed an almost obliterated antral cavity by the lipiodol injection after exposure to a specific allergen. Operation the following morning disclosed a practically normal membrane. This definitely indicates that an allergic reaction may produce a temporary edema of the sinuses. According to Proetz, antral thickening may vary from a fraction to 1 cc.

Swain⁵ states that he has seen nasal polypi disappear after the removal of the allergic cause. I have seen this in a few cases in my own experience and I am glad to say that similar opinions were expressed a few months ago before this Society by two of our well known rhinologists.

What then should our attitude be towards this group of patients? The accepted plan of study, among allergists, is as follows:

1. History. *a.* The frequent recurrence of a catarrhal condition of the nose, with nasal blockage alternating from one side to the other, frequently within a few minutes, associated with itching of the nose and palate at any time of the year, is characteristic of allergy. According to Balyeat,⁶ who analyzed 1,700 cases of vasomotor rhinitis, itching, whether of the nose or throat, eye, ear, roof of the mouth, posterior pharynx or Eustachian tube, is a pathognomonic symptom of hypersensitiveness. With this I heartily concur. *b.* A positive family history of allergy, including migraine, urticaria, eczema, asthma, angioneurotic edema. *c.* History of definite aggra-

vation by contact with any of the known allergens or fatigue and excitement.

They may be worse when dusting, powdering their face, visiting crowded places, at midnight or early morning in feather sensitive patients, after certain foods, in food allergy. Occupational factors: druggists, bakers, furriers, barbers, etc.

2. Rhinoscopic examination will reveal a definite boggy of the mucosa and turbinates. The color varying from a pinkish gray to a gray, depending on the duration of the disease. This is due to a generalized hyperplasia of the mucosa. As the hyperplasia and edema increase, definite polypi may appear. These polypi may be so large as to obstruct the entire nasal cavity or to fill up the cavities of the accessory sinuses. The antrum and ethmoids are most frequently involved.

From the histopathology I can do no better than refer you to Hansel⁷ or to Coates and Ersner,⁸ who demonstrated a similar picture in bronchial asthma.

3. Microscopic examination of the nasal secretion shows in very many cases an eosinophilia.

In a series of fifty-nine allergic cases, Eyerman⁹ found eosinophilia in 72 per cent, whereas in nonallergic cases only 9 per cent presented such findings.

Hubert¹⁰ stresses the diagnostic importance of the examination of the nasal fluid for the presence or absence of pus cells. The nasal fluid is collected in a test tube during a paroxysm of sneezing. If the fluid is turbid and pus demonstrated, he diagnoses it sinusitis. If pus is absent, vasomotor rhinitis.

4. Skin testing will very frequently be of great help in establishing the etiology. This, carefully performed, properly read and evaluated, will often solve the problem both as to diagnosis and treatment.

I can't help but repeat that in my opinion the intradermal test is the more accurate and reliable. Brown,¹¹ Alexander¹² and his co-workers demonstrated that conclusively. Balyeat's⁶ group is particularly striking. He studied 362 pollen cases by the intradermal and 207 similar cases by the scratch methods. He found 82.1 per cent positive reactions by the intradermal and only 46.9 per cent by the scratch method.

He then studied 369 animal dander cases by the intradermal and 104 similar cases by the scratch. There were 82.6 per cent positive by the intradermal and only 23.5 per cent by the scratch.

5. X-ray and transillumination may or may not give additional information in the uncomplicated vasomotor rhinitis.

According to Kern and Schenck¹³ polypi or mucoid secretion may transmit light.

The introduction of lipiodol into the nasal sinuses is a very valuable method of examining the sinuses, but as previously cited, a specific allergic reaction may cause misleading results.

When secondary infection sets in the clinical picture may be obscured. The nasal mucosa will not have the typical allergic appearance. However, a careful history and skin tests will be of a great help in avoiding erroneous conclusions.

The hypersensitiveness of the nasal mucosa is also manifested by the marked irritation incident to local treatments. I have invariably observed paroxysms of sneezing and rhinorrhea within a few minutes subsequent to local shrinkage by 1 or 2 per cent cocaine. consider it as a therapeutic test indicating sensitiveness, since such manifestations seldom occur when infection is dealt with.

The diagnostic problem in this type of patients may be a very simple one and then again it may be a very complicated one.

I shall not trouble you with the presentation of many cases but it will be of great value, I hope, if representative cases be cited.

Definite case of pyrethrum and house dust. L. D., age 32 years, referred to my clinic from the nose and throat department because of symptoms of vasomotor rhinitis of one year's duration. History was typical of sensitivity. Family history was positive. He was employed as clerk in the American Stores. Skin tests were positive for pyrethrum, feathers, house dust and ragweed. Treatment with an autogenous dust from his home and store resulted in marked improvement within two weeks, although he was careful not to handle pyrethrum. He continued treatment for nine months, when he moved from Philadelphia; a follow-up three months ago revealed that he was still enjoying good health.

Seasonal hay fever and vasomotor rhinitis frequently coexist and will often aggravate one another. Treatment must be directed towards both factors.

S. K., age 13 years, referred to my clinic because of perennial vasomotor rhinitis of three years' duration. History and family history were positive. Skin tests revealed marked sensitiveness to local house factors and a relatively slight reaction to timothy. Improvement resulted shortly after the institution of treatment. However, the reaction to timothy was overlooked and no prophylactic treatment instituted. About June 15 his symptoms recurred. Phylactic treatment with timothy gave him relief, although it reactivated his vasomotor rhinitis and symptoms continued for six weeks after the timothy season was over. At present he is very comfortable.

A very interesting fact in the mixed type, seasonal and non-seasonal, is that treatment with the specific pollen will often influence favorably the nonseasonal form. Cases of such nature are reported by Pilot.¹⁴ The following is instructive:

E. L., age 32 years, stock broker, has ragweed hay fever of five years' duration. He also has symptoms of vasomotor rhinitis throughout the year.

Treatment was begun this year about the middle of June. Within two weeks he experienced great relief from his vasomotor rhinitis. He had excellent results as far as seasonal hay fever was concerned and to this date he has no return of the vasomotor rhinitis during the winter season.

Very frequently the rhinologist and the internist have to work hand in hand. This is especially true in the anatomic abnormalities. Failure will result if they are not willing to co-operate with each other, as the following case will prove:

Mrs. B., age 28 years, had symptoms of vasomotor rhinitis of six months' duration. She was treated by a rhinologist without any relief. Surgery was suggested, to which she objected. History was positive, family history negative. Skin tests revealed many reactions to inhalants and ingestants. An autogenous house dust was prepared and improvement was very marked, within two weeks of treatment. I advised temporarily against surgery. However, after two months of relief, symptoms recurred which could not be controlled. She was therefore advised to return to the surgeon. A submucous resection gave her instantaneous relief. She therefore discontinued the injections. Relief lasted for about two months, when symptoms again recurred. She was referred back to me by the surgeon, who told her that there was nothing more for him to do. Treatment with the autogenous house dust was resumed,

which gave her prompt relief. She is still symptom free after five months.

That nasal polypi are not always primary and responsible for vasomotor rhinitis will be best seen from this case.

S. T., age 50 years, merchant, had been suffering from vasomotor rhinitis for a period of ten years. From time to time, very irregularly, he would visit a nose and throat specialist. For the last four years he has been under the care of three well known rhinologists. He had had a complete study by transillumination and by lipiodol introduction into his sinuses, which showed pansinusitis. Numerous operations were performed, which not only failed to relieve him but resulted in a thick purulent discharge in his rhinopharynx, making it impossible for him to breathe through the nose. He could not sleep at nights, would awaken with a dry tongue and a throat full of pus. He was so miserable that he was thinking of suicide. I had to sell him the idea of testing, and after perseverance I sold it to him.

Personal history and family history were positive for allergy. Skin tests revealed marked sensitiveness to everything tested, including inhalants and food. He would be particularly miserable while rearranging his merchandise—men's clothing. He was advised to remove feathers from his environment. A dust extract from his home and store was prepared. He was very resistant to treatment but after three or four weeks some improvement was noted. He has been absolutely symptom free for the past eighteen months. At present injections are still continued at intervals of two to three months.

Food sensitivity as a cause of vasomotor rhinitis, although stressed by Eyerman,¹⁵ Balyeat,⁶ Rowe¹⁶ and others, is still underestimated even by a number of allergists. The reason thereof is that some foods fail to give positive skin tests. This is well illustrated by the following case:

A. R., age 55 years, has been afflicted with vasomotor rhinitis of six years' duration. He has had four nasal operations without any relief. Family history is negative for allergy. Skin tests were slightly positive to house dusts and a few foods. Treatment based on the tests failed to benefit him any, after a three months' trial. During one of his visits he complained of precordial pain with radiation to his left arm, blood pressure was 180/110. Among other things advised, whiskey was also suggested. He volunteered the informa-

tion that the smallest amount of whiskey provokes a marked rhinorrhea and sneezing. It was ascertained that the whiskey he partakes of usually consists of rye. Skin tests to rye were negative. However, based on his story, rye bread was removed from his diet and marked improvement resulted within forty-eight hours. Were it not for the associated heart condition, rye as a cause of his condition would have escaped recognition. This is one case where Rowe's elimination diet would be very helpful in treatment.

That infection in an allergic nose as an associated condition is a possibility no one can doubt. In such cases, surgery may be indicated and should be resorted to in conjunction with allergic treatment. If infectious allergy exists, vaccine therapy may be of value. Personally, I have not seen such cases.

Lee¹⁷ reports two cases of vasomotor rhinitis with a lowered basal metabolism, which improved on thyroid administration. I admit that I have not approached my cases from that angle, although I should have, especially in the cases I failed.

The administration of calcium with parathormon has failed me in two cases tried. Ramirez,¹⁸ Rudolph and Cohen¹⁹ and others report similar results in a larger series.

Nitrohydrochloric acid has given me complete failures in three patients tried.

Ephedrin by mouth is a valuable drug in this group of patients—small doses are preferable.

Ruskin²⁰ claims very good results in this type as well as in pollen hay fever by alcohol-phenol injections into the sphenopalatine ganglion by the palatamaxillary canal route.

Wassermann²¹ reports similarly good results by injection of alcohol into the ethmoidal and nasopalatine nerves.

I wish to assure my friends, the rhinologists, that I am not a surgical nihilist. I only object to surgery as a primary form of therapy. May I quote a paragraph from Hansel's most excellent thesis because that expresses my sentiments?

To quote: "No one can deny that the removal of certain pathologic tissues in the nose and sinuses in allergy is not in accord with good sound principles of treatment. Although most gratifying results have been reported, it has been my experience that the removal of pathologic tissues from the nose and sinuses in allergy has not influenced the allergic state of the individual and that with surgery alone the results have been most discouraging in effecting satisfac-

tory alleviation or cure. The combination, however, of surgical treatment and treatment for allergy has given most satisfactory results in as large a percentage of cases as could be in the management of allergic cases."

In conclusion may I say the following:

I am frequently asked: "Have you any failures?" To satisfy the curious I'll say, "Oh, yes, we have failures." But does digitalis cure all cases of congestive or conductive heart failures, or does neosalvarsan or any other specific cure all cases of lues? Yet no one would even dream of their discontinuance as a therapeutic measure.

Our failures are not failures of allergy. They are failures because we do not as yet understand allergy—its surface has only been scratched. Many of our failures are due to lack of co-operation by the patient, as well as by some physicians. When the profession at large learns something more about allergy; when all of the suspicious cases will undergo a complete study, we will perhaps be able to increase the percentage of cures in allergic cases.

BIBLIOGRAPHY.

1. HASTING, H.: Trans. Amer. Laryngol. Assn., *Jour. Otolaryngol.*, Oct., 1930.
2. TOBY, H. G.: Ibid.
3. SKILLERN, ROSS H.: *Jour. Otol., Rhinol. and Laryngol.*, 1925.
4. PROETZ, A. W.: *Ann. Otol., Rhinol. and Laryngol.*, March, 1930. *Amer. Jour. Allergy*, May, 1930.
5. SWAIN, H. L.: Trans. Amer. Laryngol. Assn., *Jour. Otolaryngol.*, Oct., 1930.
6. BALYEAT, RAY M.: *South. Med. Jour.*, May, 1929.
7. HANSEL, F. K.: *Jour. Allergy*, Nov., 1929.
8. COATES, G. M., and ERSNER, M. S.: *Archiv. Otolaryngol.*, 1930.
9. EYERMAN, CHAS. H.: *Jour. Otol., Rhinol. and Laryngol.*, 1927.
10. HUBERT, L.: *Archiv. Otolaryngol.*, June, 1930.
11. BROWN, AARON: *Jour. Immunology*, March, 1922.
12. ALEXANDER, H.: Ibid.
13. KERN, R., and SCHENK: *Amer. Jour. Med. Sci.*, Aug., 1929.
14. PILOT, I.: *Med. Clin. North Amer.*, July, 1928.
15. EYERMAN, CHAS. H.: *Jour. Allergy*, March, 1930.
16. ROWE, A. H.: *Jour. Amer. Med. Assn.*, Nov. 24, 1928.
17. LEE, ROGER I.: Vasomotor Rhinitis and Hyperthyroidism. *Med. Clin. North Amer.*, May, 1925.
18. RAMIREZ, M. A.: Calcium in Asthma, Hay Fever and Urticaria. *Jour. Allergy*, March, 1930.
19. COHEN, M. B., and RUDOLPH, J. A.: A Clinical Study of the Rise of Calcium in Controlled Cases of Allergy. *Jour. Allergy*, Nov., 1930.
20. RUSKIN: *Archiv. Otolaryngol.*, June, 1930.
21. WASSERMANN, M.: *Monatsschrift für Ohrenkr.*, May, 1930.

2010 Pine Street.

NOSE AND THROAT INFECTIONS IN GENERAL MEDICINE.*

DR. M. B. LEVIN, Baltimore.

In presenting this paper, I am attempting to set forth my personal views of the relationship of nasal and throat infections to general medicine.

During the past ten years I have come to the conclusion that very many nasal operations are not complete successes in removing foci of infections, and the same is true of tonsil removals, the variation or completeness of removal being the individual surgeon's factor.

In attempting to determine the reasons for the failures in eradicating such focal infection, I began to study more closely various conditions of the nose and throat.

The turbinates are chiefly spongy bone, covered by soft tissues consisting mainly of large blood and lymphatic vascular structures, covered by mucous membrane common to the rest of the nasal cavities. Their functions are thermostatic; that is, to heat the incoming air to the proper temperature before it reaches the pulmonary tissues. In addition, they impart the necessary moisture to incoming air to prevent drying of the aforementioned tissues.

The sinuses are simply air spaces provided to lighten the skull and make it more buoyant, also acting as buffers against trauma. The openings of the sinuses excluding the sphenoid are all just above turbinates, so that they are protected ordinarily from direct infections or pathological conditions by the turbinate structures. This advantage of protection, however, is somewhat overbalanced by the fact that they are placed in a vulnerable position with regard to pathological conditions of the turbinates.

In infancy and early childhood, the nasal passages are relatively small in proportion to the size of the body. Nature makes these provisions in order to give greater protection against chill-

*Read before the Otolaryngological Section of the Baltimore Medical Society, Friday, Nov. 25, 1932.

Editor's Note: This ms. received in Laryngoscope Office and accepted for publication, Dec. 15, 1932.

ing and drying of the respiratory mucous membrane, and to keep down as much as possible, infections in the lower respiratory region until the individual has built up a relative immunity. We therefore see in the unstable infant with too narrow nasal passage, unstable or excessive responses to thermostatic effects on the exterior of the body. This manifests itself in a relatively greater rhinorrhea, and more rapid response by sneezing to the swelling of the turbinates which come in contact with the nasal septum. These results are the symptoms of the so-called nasal "colds."^{1, 2}

The turbinate structures, Nature's first line of defense in the nose, are first attacked by invading bacteria. The second line of defense, the lymphoid structures in the nasopharynx (adenoids in children) and the pharyngeal lymphoid tissues (especially the posterolateral columns) next become involved. The cervical lymphatic glands, the third line of defense, then become involved in the fight for immunity. Unless the infection in the turbinates ahead is attacked at the same time, scraping or cutting out of adenoids or adenoid tissue, remedies only partly the condition for which they have been removed. This holds true for infections of the sinuses in general. In attempting to remove these foci of infection, the sinuses should not be considered as special secretory organs but simply a part of the intimate nasal structures, chiefly turbinates.

Pathological conditions of the above have a very definite effect upon the remainder of the respiratory, gastrointestinal and other associated tracts.

In considering the nasal and pharyngeal mucous membrane, we must bear in mind that secretion of mucus is normal to a certain degree. Excessive secretion of mucus is always the result of irritation, either directly or indirectly. These irritative factors may be listed as follows:

A. Mechanical or physical. 1. Contact between swollen turbinates and septum. 2. Foreign bodies. 3. Excessive thermostatic action, etc.

B. Chemical factors. 1. Gaseous. 2. Liquid. 3. Solid, etc.

C. Allergic. 1. Pollens. 2. Feathers. 3. Dust, etc.

D. Infectious or bacterial factors.

This hypersecretion of mucus, whatever its cause or source, is in turn an extremely common cause of irritation and infection to the respiratory and gastrointestinal tracts.

Observation of the oropharynx before direct nasal examination is made, frequently reveals in the posterolateral columns the degree of activity and the side of the nose affected. These columns are intimately associated with the remaining pharyngeal tissues, especially the musculature of the pharynx. Thus cervical myositis and myalgia as well as pharyngeal myalgias are extremely common with nasal conditions. Direct infection of these structures frequently extend by continuity of the nasopharyngeal mucus sheet or of tissue to the mucous membrane of the larynx, trachea and bronchi, thereby causing corresponding infections. It may also descend down the esophagus, causing esophagitis. At times it extends further and goes down into the gastrointestinal tract. Postnasal dripping may also be a primary source of direct irritation to the vagus and sympathetic nerve endings in the nasopharyngeal mucous membrane, resulting in spasm or relaxation of various parts of the gastrointestinal tract, or respiratory mucous membranes, and result in either chronic bronchitis or bronchial asthmatic attacks. The infection itself may give rise to esophagitis or intense hypersensitiveness of the mucous membrane with heartburn, causing painful and difficult swallowing with at times evidences of cardiospasm, frequently persistent hiccoughs or other irritative symptoms.

Mucus is an excellent absorptive agent of the dilute hydrochloric acid in the gastric juice and the constant swallowing of excessive mucus, whether infective or not, is a very common cause of hypochlorhydria with insufficient gastric digestion. As a matter of fact, we employ mucus for its absorptive action in the treatment of gastric and duodenal ulcer, thus taking up the gastric secretions very actively.

Gastric analysis at certain periods of the day may show relatively normal figures of acidity, both free and combined, and when active secretion of mucus at other periods of the day occurs, there may be as a result of this, very little gastric secretion left for digestion at this time. The decreased gastric secretions in certain instances permit through incomplete digestion, the absorption of bacterial products, such as toxic albumins instead of the absorption of products of further digestion, such as peptones, polypeptides, amino acids, etc. In some patients this results in

so-called allergic reactions; i. e., hives, eczema, asthmatic attacks or angioneurotic edema, etc. The incomplete digestion of food products gives rise at times to other gastrointestinal disturbances, such as diarrheas, mucous colitis, etc., or may produce allergic reactions from these improperly digested protein products.

In several cases of pernicious anemia with spinal cord involvement showing the usual achlorhydria, satisfactory results were obtained without the use of the usual large doses of liver. As a matter of fact, one case shown here two years ago with those of Dr. Longcope, never had liver administered therapeutically, although the patient was not told to abstain entirely from eating it. At first, she was given up to three drams each of dilute hydrochloric acid and pepsin. Under the treatment for relief of postnasal dripping and infection, I have been able to reduce the quantity of hydrochloric acid and pepsin to one dram of each during the past year, without in any way affecting the improved signs and symptoms of the pernicious anemia. Another spinal cord case with pernicious anemia has been able to reduce hydrochloric acid and pepsin to one-half dram of each after nasal infection was attended to. In my opinion, these cases of pernicious anemia bear out not only previous statements of varying digestive capacities under varying conditions but show that they can be made artificially to produce their own "ventriculin" by the administration of dilute hydrochloric acid and pepsin, the one case first mentioned having gone between four and five years under this administration.

I have noticed in certain eye conditions, such as hemorrhage into the vitreous, or in certain types of choroidoretinitis, that removal of nasal infection alone does not stop the source of these hemorrhages or optic conditions, and correction of diet or gastrointestinal effects of the nasal infections will aid in materially improving the eye conditions. Retinal hemorrhages which were treated by repeated tuberculin injections cleared up under the combined treatment for nasal foci of infection and the general or gastrointestinal treatment, eliminating entirely the need for antigen therapy.

We are acquainted with the marked susceptibility of many people to repeated "nose and throat colds." We know how one cold apparently makes one more sensitive to a repetition of the same. My experiences and observations during work on so-called repeated "common colds" lead me to the conclusion that the

mechanical and physical factors are the immediate precipitating ones (of the colds) superimposed upon the pathological tissue. These taken together are the primary causes of the "common cold" and not the individual organism found locally. In other words, I do not think that any one specific organism or filterable virus will be found as the etiological factor of our "repeated common cold" in the same sense as the *B. diphtheria* or typhoid is always the cause of these respective diseases and transmitted, recovered, cultured, etc., according to Koch's postulates. The various organisms claimed as the etiologic factors of "repeated common colds" in my opinion are those that happen to be at the moment present in or upon the tissues. One attack of rheumatic fever may make one more susceptible to subsequent protracted attacks. We know, too, that chronic infectious arthritis is decidedly progressive in most instances, as are also the infectious types of bronchial asthma and chronic bronchitis. In other words, there seems to be a definite tendency to a general hyper- or progressive susceptibility or, as it is frequently termed, allergy. Small repeated infections, usually with streptococcus types of organisms, instead of giving immunity or resistance to infection, seem to break down this resistance and cause the individual to be more susceptible not only to repeated infections of the same type, but generally allergic to other types of organisms and to the toxic protein products of foods.

I have observed in the past few years a phenomenon which has some bearing upon this general immunity or general allergy. In widespread local infections, such as pansinusitis and where the infection is more generalized, perhaps manifesting itself in positive blood cultures or even in pulmonary involvement, I have seen the injection of 10,000 units of diphtheria antitoxin (half the amount in children) followed by a rapid localization of infection. Fever was halted within from one to twenty-four hours and a diminution of symptoms followed as swiftly. I have not been able to obtain such results from plain horse serum or other antitoxins. A possible explanation is the occurrence in the horse during the formation of diphtheria antitoxin of a multiple type of immunizing material, and the reaction in the patient is not the result of protein shock but that of diphtheria antitoxin against other types of bacteria (homologous antibodies).

There have been any number of reports in the past few years concerning the effects of tonsil and adenoid removal upon vari-

ous conditions; such as colds, infectious diseases of other types, joint conditions of the acute rheumatic and chronic infectious types, and upon cardiac involvement, etc. There also have been reports summarizing the effect of these foci of infection upon general infections of various types and upon immunities and hypersusceptibilities.³

My explanation of the failure to clear up the general conditions mentioned is that there was a failure to completely remove the foci of infection rather than lack of association between the foci of infection and general conditions. My observation, as first mentioned, leads me to assume that the great majority of tonsils or tonsillar tissue had not been completely removed. This has been confirmed to me by rhinolaryngologists as well as general medical men and is due to the fact that we did not have available the proper means other than the knife, actual cautery and the snare to remove these structures.

You, who have attempted at any time to perform tonsillectomies or who have watched tonsillectomies being performed, can realize the difficulty under which the surgeon works to bring about complete tonsillar removal. A frequent effect noted in the remaining small pieces of lymphatic tissue, was, at times, a noticeably increased virulence of the infection in the patient. I am not surprised, therefore, at the widespread reports that tonsillectomy and adenoidectomy have failed to remove the foci of infection and have left a doubt as to whether or not these foci of infections had been actually responsible for certain conditions.

Our only hope for obtaining better results in the various types of arthritis is to eradicate every focus of infection in the individual, regardless of how insignificant it may appear to the physician, correct any abnormality of digestion, diet or elimination, and permit the individual to gradually raise the general resistance to infection by keeping him completely free of irritative or infective factors. Today we are no longer on the defensive in the treatment of these chronic arthritides but are definitely on the offensive, due to recognition of these facts.⁴

I should like to bring up a question concerning bacterial endocarditis cases. Has it not seemed a little strange to you, to say the least, to expect streptococci of the usual type to remain alive for any extended period of time in the valvular lesions without overwhelming the patient or themselves being overwhelmed by the patient, unless reinfection of these valves from some active

undetermined or incompletely eradicated focus of infection is taking place? Does it not seem more logical to consider that these same streptococci or other bacteria may be coming from their source of infection to lodge in their elective or selective regions in the heart valves and reinfect them, in turn, causing a flare-up with the subsequent typical course? As we have practically nothing else to offer at present, do you not think it best to consider the above mentioned possibilities and try eradication of every possible focus of infection in these cases?

We are all familiar with the work so well propounded for a long time by Dr. Guy L. Hunner, of this city, who has called attention to the definite relationship of focal infection to pyelitis and ureteral strictures. I have seen numerous cases of apparently chronic nephritis manifested by persistent albumin and casts finally clear up when the foci of infection had been located and completely eradicated.

I have also seen in the past six years many gastrointestinal conditions, especially hypochlorhydria, clear up after thorough correction of nasal and throat abnormalities. The greatest percentage of acquired deafness is directly the result of postnasal infection of the Eustachian tube from turbinate involvement. Hyperthyroid symptoms frequently associated with thyroid enlargement including exophthalmic types of goitre, in many instances, are directly associated with nasal and throat infection. Approximately 75 per cent of the cases of hyperthyroidism show definite involvement of the nose and throat lymphatic structures of an infectious type, either severe or of low grade. I have seen many such cases relieved entirely of all symptoms and signs, except for a slight amount of residual exophthalmos and slight thyroid enlargement with or without nodules, by complete eradication of nasal and throat infective tissues.

This brings us to the means we have at hand for complete eradication of nose and throat infection.

Possibly a minority of nasal conditions will demand surgical interference but in the remaining groups the present day method can well replace surgery.

High frequency alternating current of various types can be employed in the treatment of the majority of nasal conditions. This means that the one using this method must have definite knowledge of the nose and throat structures as well as the effect of high frequency current on the various tissues. I wish to

briefly call to your attention the general consideration of high frequency current. Any current with a frequency or oscillation over 30,000 produces no Faradic effect or stimulating effect of alternating current on nerve tissues. It does have, however, a stimulating effect upon metabolism of tissues raising the temperature in the tissues. As the frequency of the alternating current is raised (with the proper voltage) the resistance in the tissues to the current is raised, causing the temperature in the tissues to rise until one reaches about one-half million to one and one-half million frequency, at which point either partial cooking or complete charring may occur. The best results so far have been obtained by frequencies between 800,000 and 1,250,000 with the proper electrodes but these do not produce as good effects upon tissues as we would like to obtain. My opinion is, that with frequencies confined to the bands between 300,000 to 800,000, better results from the nondestructive standpoint (with lower voltage) will be obtained, permitting us to send a lower cooking current deeper into the tissues without destroying the vitally important mucous membrane and this, in turn, should permit more rapid and more permanent results.

A destructive bipolar current over a small area, or a non-destructive current over a large area can cook the tissues to the degree desired. Sufficient reaction from the heat eventually shrinks the turbinates to a noticeable degree. This is repeated until a fibrosis of the tissues occurs and stops their excessive secretion and the excessive sensitivity to irritants and infections.

I have seen numerous individuals greatly relieved of their hay fever and bronchial asthma by this method of shrinking or partly destroying the sensitive turbinate mucous membrane. Although this treatment does not combat the general susceptibility to pollens, it does present a nonsensitive nasal structure to the irritative substance, thus diminishing the precipitating factors of the hay fever or asthma. Many sinus infections associated frequently with nasal polyps have been cleared up by this advanced type of nasal treatment, and I have seen cleared to date, numerous cases of infective bronchial asthma of the nonspecific or nonallergic type. This treatment eliminates the mechanical contact with the septum.

Postnasal dripping, considered until now the direct result of climatic effects and as impossible to correct, can by these means be eliminated. We do not have to face the chronic nasal catarrh

with devious explanations and excuses. We are in a position to help the greater number of cases by the high frequency current.

Let me call to your attention, in discussing high frequency current, a factor which has been so often overlooked in this type of work. Medical diathermy employs comparatively large electrodes, either one of which may be active or indifferent. Surgical diathermy from around three-quarters of a million up to five million, employs wire or needle-sized electrodes producing either coagulation, charring or cutting current effects. In this type of work, which is medicosurgical or nondestructive, the type of active electrode is extremely important and naturally the size of the electrode will govern the technique used. For this reason, I feel that whenever techniques are given for nasal treatment of nondestructive type that, relatively speaking, the size of the active electrode should be mentioned or the surface area. The same operator on the same patient, unless he uses the same sized active electrode, must vary his technique or standard sizes must be decided upon after practical experience and results are determined, before giving certain types of technique and their results.

In young children we must still resort to our previous means of tonsil removal but we must subsequently destroy the remnants by electrocoagulation. In adults this method has been employed for years, and in skilled hands has been entirely satisfactory in eliminating tonsillar tissue completely.

One word of warning, one cannot embark on the practice of medicine with a high frequency machine and start out to cure everything without special knowledge of conditions of the nose and throat. I personally hope that the limitations of high frequency therapy will be recognized and within its limited field the development of the same will be pushed to the utmost by actual trial and experiment.

These conclusions have been reached after years of study and observation.

REFERENCES.

1. COHEN, M. B., and RUDOLPH, J. A.: Allergic and Infectious Conditions of Upper Respiratory Tract in Children. *Jour. A. M. A.*, Oct. 3, 1931.
 2. MCCLEAN, C. C.: The Incidence of Recurrent Respiratory Infections in Childhood. *Jour. A. M. A.*, Nov. 1, 1930.
 3. MILLS, A. B.: The Extent of Illness in the United States. Committee of Cost of Medical Care (pub. 2).
 4. NICHOLLS, E. E., and STAINSBY, W. J.: Streptococcal Agglutinins in Rheumatoid Arthritis. *Jour. A. M. A.*, Oct. 17, 1931.
- 211 W. Monument Street.

EARLY EAR, NOSE AND THROAT MANIFESTATIONS OF LETHARGIC ENCEPHALITIS.

DR. ARTHUR M. ZINKHAN, Washington, D. C.

The first symptoms of lethargic encephalitis occasionally are met with as local manifestations of disease in the ear, the nose or the throat. When they do occur, they often constitute the whole clinical picture in the first few days of the illness. Such patients, unfortunate enough to be victims of this malady, have been operated for acute mastoiditis and sinusitis. In the presence of pain over the mastoid or the frontal sinus, with no demonstrable pathology, we must keep in mind the possibility of a beginning encephalitis.

The most frequent form is characterized by early vertigo, loss of equilibrium and lateropulsion, the lethargy often late and inconstant in appearance. Tinnitus may occur alone as an early symptom, with no apparent disturbance in hearing. Pain over the mastoid may persist for days as the only symptom of this disease, such as occurred in one of my own cases. Vestibular phenomena are more frequent, so much so that Babinski and Weill evolved special tests for diagnosis. In others, the labyrinthine symptoms may predominate, and be overshadowed only by oculomotor manifestations. In a typical case, a patient is suddenly seized with vertiginous sensations, without lethargy or diplopia. The attack may last several weeks, until work must be abandoned and definite relief sought. The vertigo has been wrongly diagnosed as due to cerebellar disease, Meniere's disease, cerebral arteriosclerosis, or in some cases as purely functional. The lesions may occur in the region of the vestibular nucleus, in the nerve itself, or in the nuclei connected to it by means of the medial longitudinal bundle. The globus pallidus, which is stated to have a direct connection with the vestibular nucleus, appears to be one of the most frequent sites for the lesion of epidemic encephalitis.

Editor's Note: This ms. received in Laryngoscope Office and accepted for publication, Nov. 1, 1932.

The paranasal sinuses, which some investigators believe to be a main point of entrance for the virus of encephalitis, are involved so seldom that no case reports were found in the literature. Nevertheless, a definite, clear cut case whose one symptom was constant pain over the left frontal sinus, came under my observation just a few months ago. Certain cranial nerve nuclei and their connections for which the virus of encephalitis has a marked affinity, can cause symptoms of acute sinusitis when affected.

The throat also may be the seat of selection. The retching reflex may fail in spite of sensibility of the pharynx. Outside the quivering and spasticity of the lip and tongue musculature, there may be single or double insufficiency of the palate and vocal cords. Difficulty in phonation appearing suddenly, with no apparent pathological cause, would immediately arouse our suspicions.

There is one rather constant symptom present in these cases, which aids materially in making an early diagnosis. This symptom is irritability. It is nearly always well marked, often not noticed by the patient, but striking to his friends. I would place this as the forerunner of all other symptoms, the pain, or the vertigo, or difficult phonation coming on as a secondary phase.

The differential diagnosis is most important. Meniere's disease may be excluded by the history, the absence of tinnitus, and the presence of ptosis. In intracranial tumors we would look for projectile vomiting, headache, and optic neuritis which are at present in 80 per cent of these cases. Localizing signs gradually become progressive as the tumor enlarges. In tumors of the cerebellopontine angle, nerve deafness is associated with tinnitus. Vertigo and nystagmus occur in both. Time and careful observation may be necessary to clear the diagnosis. In tumors of the cerebellum there is ataxia, dysdiadochocinesia, and atonia, nystagmus on looking toward the lesion, and vertigo away from the side of the lesion.

Epidemic encephalitis has filled the literature with postencephalitic sequel, but little has been said about beginning encephalitis. Early cases do occur which are misleading, and which can and should be diagnosed in the prelethargic stage. Spinal fluid examination or neurological findings are not constant, and cannot be relied upon in the early development. In patients with symptoms suggestive of disease for which we can find no definite

pathological cause; who are irritable, and who are not relieved by ordinary palliative treatment, the possibility of encephalitis lethargica must be borne in mind.

Case 1: White woman, age 34 years. History of constant pain in the region of the right mastoid for the past forty-eight hours. The pain came on gradually and increased in severity, until the patient had to stop work and try to obtain relief. Examination of the ear was negative. The hearing, tested with the audiometer, normal. The pain over the mastoid was not increased by pressure. Nothing was noted in the nose, throat or the teeth to cause her symptoms.

Palliative treatment with rest in bed was instituted for the next twenty-four hours. In my absence, the drum membrane was incised by another specialist, in an effort to relieve the pain. The patient was removed to the hospital on the third day. The blood count was normal, no rise in temperature, and Roentgen examination revealed normal mastoids. The family at this time urged operation for the relief of pain, and wished to call some surgeon who would open the mastoid. They gave a history of marked irritability of the patient, which had grown steadily worse for the past two weeks. A complete neurological examination was made on the fifth day with negative findings. In consultation with the neurologist the following day, we noticed a very slight lateral nystagmus. The spinal fluid at this time was under increased pressure, with a cell count of eighteen and the presence of globulin. The evening of the sixth day the patient was in lethargic coma. After the second spinal puncture, the pain over the mastoid was entirely relieved, and the patient made a slow but complete recovery.

Case 2: White boy, age 18 years. History of difficulty in swallowing for the past three days. The patient one month previously had a severe coryza from which he apparently recovered. Since the onset of the difficulty in swallowing, he had been under the care of several physicians, who had attempted to feed him with a stomach tube. Examination showed slight drowsiness and some irritability. On questioning, it was brought out that he had diplopia for several days, without telling anyone about it. He had considerable difficulty in swallowing water, and his speech was blurred and thick. The larynx showed loss of motility, with insufficient closing of the vocal cords. Spinal puncture revealed a slight increased tension and some globulin.

Within the next forty-eight hours the drowsiness increased, together with irritability and marked diplopia. These symptoms lasted two weeks, and then cleared up very quickly. It was followed, however, by a marked muscular weakness and tremors, which lasted, before an entire recovery, until the following year.

Case 3: White woman, age 26 years. History of acute pain over the left frontal sinus, which came on suddenly. The patient was engaged in writing a book, and was obliged to stop all mental work and remain in bed. Examination of the nose was entirely negative. Roentgen examination of the paranasal sinuses revealed them to be apparently normal. The teeth were also negative. Local treatment to the nose, including cocaineization of the sphenopalatine ganglion only increased her pain and irritability. There was a mild degree of diplopia noted the second day. Unfortunately, this patient was removed by her family to another city, upon learning of the probable diagnosis of encephalitis lethargica. It was reported later that on the day following her arrival she became lethargic and a positive diagnosis was made, from which she later made an apparently satisfactory recovery.

BIBLIOGRAPHY.

- RAYBURN, C. R.: Epidemic Encephalitis. *South. Med. Jour.*, Birmingham, xxi, 645-649, 1928.
- EAGLETON, W.: Encephalitis Lethargica. *Ann. Otol., Rhinol. and Laryngol.*, St. Louis, xxxviii, 940-944, 1919.
- ZINSSER, H.: The Present State of Knowledge Regarding Encephalitis Lethargica. *Arch. Pathol.*, Chicago, vi, 271-301, 1928.
- RAYBURN, CHAS. R.: Epidemic Encephalitis. Fiske Fund Prize Essay, No. lxiii.
- YATES, A. L.: The Condition of the Accessory Sinuses in Encephalitis Lethargica. *Jour. Laryngol.*, London, xl, 646-649, 1925.
- GREENFIELD, J. G.: The Pathology of Encephalitis Lethargica. *Jour. Ment. Sc.*, London, lxxiii, 575-581, 1927.
- POSTON, R. I.: Vestibular or Labyrinthine Epidemic Encephalitis. *Brain*, London, xlix, 482-524, 1926.
- HOWELL, C. M. H.: Encephalitis Lethargica. *Brit. Med. Jour.*, London, i, 437-440, 1925.
- PERDRAN, J. R.: The Virus of Encephalitis Lethargica. *Brit. Jour. Exper. Path.*, London, vi, 125-128, 1925-26.
- YATES, A. L.: The Nasal Sinuses as a Route of Infection in Encephalitis Lethargica. *Proc. Roy. Soc. Med.*, London, xix, Sect. Laryngol., 13, 1925-26.
- FRIESNER, I.: Epidemic Encephalitis, Auditory and Vestibular Lesions. *Tr. Amer. Laryngol., Rhinol. and Otol. Soc.*, New York, xxviii, 285-290, 1922.

CHILDRY, J. and H., and PARKES, H. L.: Myoclonic Movements of the Larynx and Pharynx. A Manifestation of Epidemic Encephalitis. *Arch. Otolaryngol.*, Chicago, xiv, 139-148, 1930.

WODAK: Monosymptomatic Labyrinthine Form of Encephalitis. *Acta Otolaryngologica*, 14, 180, 1930.

PORTMAN, G.; DESPONS, J., and RETROVEY, H.: Les Sequelles Vestibulaires de l'Encephalite Epidemique. *Rev. de Laryng.*, 51, 515, 1930.

CISLER, L.: Sur les Troubles de Language Articule et de la Phonation au Cours de l'Encephalite Epidemique. *Arch. Intern. de Laryng, Otorhinol. et Bronchoesophag.*, 6, 1054, 1927.

HELSMOORTEL, JR. J., and VON BOGAERT, L.: Recherches sur l'Etat des Fonctions Vestibulaire dans les Crises Oculogyres de l'Encephalite. *Jour. de Neurol. et de Psychiatrie*, 27, 574, 1927.

815 Connecticut Avenue, N.W.

AN EASY APPROACH TO THE SURGICAL EVULSION OF THE SECOND BRANCH OF THE TRIGEMINAL NERVE.*

DR. DAVID L. POE, New York.

Surgical interference is frequently found the only procedure left after all of the conservative methods to combat successfully the pain incident to trigeminal neuralgia have been exhausted. When that is necessary some compelling points govern the choice of procedure.

First among these is to offer the greatest amount of relief with the least degree of trauma to which the patient is exposed. The greatest amount of probable relief from pain is naturally offered by the evulsion of the semilunar ganglion. In eradicating the ganglion, all three branches lose their central connection.

Sometimes, however, clinical conditions arise when only the second branch of the trigeminal seems to be involved, so that the clinician deems the resection of the second branch, not far removed from the semilunar ganglion, sufficient to free the patient from existing pain. Indeed, the closer the nerve is severed to the semilunar ganglion, the greater are the probabilities of complete relief. The following case might serve to demonstrate the point in view.

Mrs. A. G., age 63 years, white, consulted the writer because of severe pain, usually beginning slightly lateral to the midline of the upper lip and alveolar process, extending rapidly lateralward along the alveolar process then upward to the temporal region, right side, where the patient felt as though her head were in a vise which was being gradually tightened.

She had been suffering for over six years when I first examined her. Four and a half years before she came to see me she had, on advice, had all her teeth extracted.

To relieve the patient of the pain, a well-known neuro-surgeon injected the sphenopalatine ganglion several times, giving only short

*Part of a series of lectures given at the Naval Hospital, Newport, R. I., April 23, 1932.

Editor's Note: This ms. received in Laryngoscope Office and accepted for publication Nov. 21, 1932.

intervals of relief. In the past year she has had no relief lasting longer than two hours.

While the patient was in the hospital under observation, the writer injected the sphenopalatine ganglion with 2 per cent novocain, at another time with 80 per cent alcohol and at still another time with 80 per cent alcohol, $\frac{1}{4}$ per cent phenol. Relief was only temporary. After consultation it was deemed advisable to remove the second branch of the trigeminal nerve close to the foramen rotundum, and not to interfere with the first and third branches since they appeared to be unaffected.

The operation was carried out according to the technic about to be described.

Before engaging in a description of our technic, let us briefly refresh ourselves as to the anatomy of the sinus maxillaris, because this cavity plays such an important role in this particular operation.

The maxillary sinus is pyramidal in shape. The lateral wall of the nasal cavity forms its base and its apex extends into the zygomatic process. The roof forms the floor of the orbit. The maxillary branch of the trigeminal nerve as it emerges from the foramen rotundum passes across the pterygopalatine fossa and immediately enters the posterior opening of the infraorbital canal and emerges through the infraorbital foramen anteriorly. It is this course which we have to keep always in mind so that our orientation as to the course of the nerve is always true.

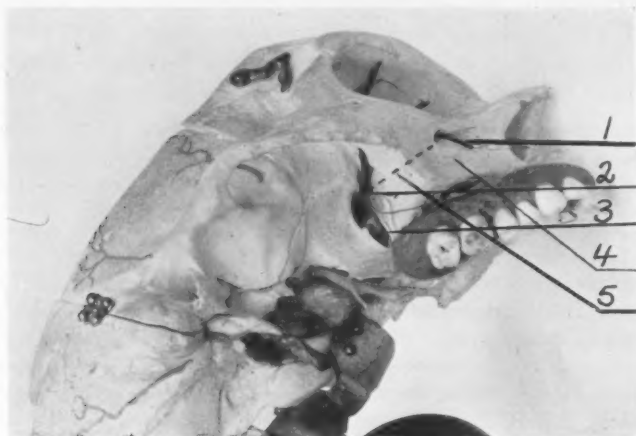
The first step in the operation is to make the tissues completely anesthetic. This is accomplished by injecting the organs contained in the pterygopalatine canal with either a 1 per cent or 2 per cent novocain solution, to which about 12 drops of adrenalin chloride, 1/1000 to the ounce, have been added.

The organs contained in the canal are easiest injected by introducing a thin needle, about 3 or 4 cm., through the greater palatine foramen. If done properly, there is no discomfort to the patient. The infraorbital nerve is then injected with the same anesthetic fluid, as well as the tissues about the gums.

A horizontal incision is then made along the gumline. Soft tissue and periosteum are elevated up to and including the infraorbital foramen, where the infraorbital nerve is distinctly seen. An opening is made in the anterior wall of the maxillary bone at its thinnest point, which is close to the fossa caninae. Some of the bone is

quickly bitten away with a biting forceps. We have now opened the maxillary sinus, the roof of which contains the bed of the maxillary nerve. Thus far it is similar to the Caldwell-Luc operation.

It is absolutely necessary to be oriented as to the position of the maxillary nerve as we proceed through the sinus maxillaris. It is done as follows: A probe is introduced into the infraorbital canal until it emerges into the pterygopalatine fossa. It may be necessary



Skull—Part of Author's Anatomical Collection.

Fig. 1. Bristle in infraorbital foramen, passing through infraorbital canal posteriorly.

Fig. 2. Bristle in sphenopalatine canal, emerging from foramen rotundum posteriorly, passing anteriorly towards the posterior opening of the infraorbital canal. Second branch of trigeminal nerve spanning the superior part of the pterygopalatine canal medial to the bristle.

Fig. 3. Sphenopalatine ganglion.

Fig. 4. Surgical entrance into maxillary sinus.

Fig. 5. Dotted line represents the infraorbital canal through which the maxillary nerve passes.

to remove a small portion of bone about the infraorbital foramen to permit easy entrance to the thin probe. All that remains now is to remove a small amount of bone forming the floor of the infraorbital canal via the maxillary sinus. When that is accomplished the probe is seen, with the nerve, in the bed.

The removal of the bone forming the floor of the infraorbital canal may be continued posteriorly as far as the foramen rotundum, where the nerve emerges from the cranial cavity. The probe in the

infraorbital canal extends towards the foramen rotundum and acts as a definite guide to the maxillary nerve. After the bone is taken away with the edge of a narrow sharp chisel, the nerve can be hooked out of its bed with a hooked instrument shaped like a dental explorer and its continuation severed or evulsed.

The approach to the maxillary nerve by way of the sinus maxillaris immeasurably simplifies a difficult operation. Nature has given us a ready-made cavity, necessitating the removal of only a minimum of tissue.

The entire operation consumes very little time. The trauma incident to the same is a minimum. Recovery is rapid and there remains no disfigurement.

The rhinologist is particularly fitted to carry out this operation because of his thorough acquaintance with the anatomical structure traversed during the operation.

The author has not seen this operation described in the literature. So far as the writer is concerned, it was carried out as an original procedure on three living patients with satisfactory results.

This paper is not offered as a treatise on the treatment of trigeminal neuralgia, but rather as an easy approach to the second branch of the trigeminal nerve as it enters the posterior opening of the infra-orbital canal or foramen rotundum, where it can be exposed to surgical treatment.

57 West 57th Street.

HYPEROSTOSIS-EXOSTOSIS OF THE EXTERNAL AUDITORY CANAL.

DR. M. A. GLATT, Chicago.

The terms hyperostosis and exostosis are often used synonymously by various authors; in fact, Dorland's Medical Dictionary defines hyperostosis as a hypertrophy of bone; exostosis. Gleason in his textbook on Diseases of Ear, Nose and Throat, differentiates the two by stating that exostosis has a local inflammatory origin.

Many etiological factors for the hyperostosis are mentioned in textbooks, such as, in the natives of Peru, rheumatic and gouty diathesis, chronic suppuration of the middle ear, repeated attacks of furunculosis and heredity. It is a matter of experience that frequent attacks of circumscribed external otitis may lead to a low grade localized periostitis and even to a subperiosteal abscess which may discharge into the canal. In the healing process an exostosis may sometimes form on the posterior canal wall. It usually does not assume large proportions. The diffuse type of external otitis, especially if repeated, leads to a generalized fibrous narrowing of the entire canal with a central free lumen. Often as a sequel to a chronic suppurative otitis media associated with low resistance, and especially where the canal has a marked inward curve, a local circular fibrous or bony atresia with a central free lumen may form. This, however, is not a hyperostosis.

These patients do not always present a history of gout or rheumatism, and it is therefore well to eliminate the latter as etiological factors. The reason for its frequency in natives of Peru has been ascribed to sea bathing, a very doubtful explanation in view of the fact that inhabitants of other localities of the globe may be equally exposed to the action of salt water.

Anatomical Factors: When we consider that the formation of the external auditory canal is brought about by all the three parts of the temporal bone—annulus tympanicum, squama and petrous portion—it will be easily conceived that a smooth straight tube cannot be expected to form, and that an occasional malformation in its development may result. It is the exceptional case where the external

Editor's Note: This ms. received in Laryngoscope Office and accepted for publication, June 25, 1932.

canal forms a perfect straight tube, and inspection of the eardrum is easily accomplished without the aid of a speculum.

In examining dried temporal bones it will be observed that there is often a lack of fusion of the annulus tympanicum with the post-auditory process, which form the external surface of the mastoid, and the posterior inferior portion of the external auditory canal. A sheath-like formation is often noted which differentiates the two embryonic structures, and a free edge projects into the lumen of the canal. The anterior limb of the annulus which forms the tympanic plate and the anterior and inferior portion of the external canal, is seldom fused with the root of the zygoma anteriorly nor with the squama above. Its free edge also projects into the lumen of the canal.

Normally, the cartilage and epidermis bridge over these projections and make them unnoticeable. However, in individuals who have an hereditary predisposition to developmental anomalies, the above described projecting portions may be the starting point of a hyperostosis. The formation finds its analogy in the nose, where a septal spur is seen at the junction of the quadrilateral cartilage with the perpendicular plate of the ethmoid and vomer.

It is therefore more logical to consider these hyperostoses as a developmental anomaly. This may also explain the high incidence of the condition in Peru, or an occasional case in a different zone, with apparently no relationship to general systemic diseases nor chronic local affections of the external or middle ear. Any external or middle ear affection is much aggravated by the hyperostosis, but they are not to be considered as etiological factors.

Even if of moderate size, little discomfort is caused by a hyperostosis; only when cerumen or epithelial debris accumulates does it interfere with hearing. It can be left alone. However, when it is large and causes a feeling of pressure in the ear, or deafness, then it calls for operative interference. A more positive indication is an associated suppurative otitis media in the same ear, or a loss of hearing on the other side.

From the case histories here reported we may conclude that the process assumes a certain size at the time of complete development of the temporal bone, and then remains stationary. The mastoid process and tympanic plate are not involved. These two factors differentiate it from an osteoma. However, it is of utmost importance for the reasons noted below to differentiate it from a congenital bonv

atresia, otherwise an unnecessary dangerous operation will have been undertaken.

It is a matter of record that anomalies of the external ear are often associated with abnormalities in the other divisions of the ear. Hagens¹ has reported the necropsy of an infant with an absent auricle and external canal. Histologic studies revealed also defects of the middle and internal ear.

Shambaugh² is succinct on the subject of congenital atresia in stating: "If the labyrinth is involved such an operation is of no use, and if the labyrinth is not involved the operation is not necessary."

Briefly analyzed, from a practical standpoint the lack of the tympanic membrane in the atresia cases fails to warn the surgeon when chiseling the external canal, of his encroachment on the cochlea. When a radical mastoid operation is attempted to circumvent this drawback, there is often distortion of the usual landmarks and an anomalous position of the facial nerve, which makes it a hazardous procedure. The improvement in hearing following the radical mastoid operation, even under best after-care, is usually of short duration, and is eventually lost.

When the presence of a functioning labyrinth has been ascertained, the following tests may be of help in eliminating the possibility of a complete atresia. No matter how extensive a hyperostosis may be, there is an area which will permit the introduction of a 1 m.m. silver probe, which when pushed forward will impinge on the tympanic membrane and elicit a reaction. Iodized oil instilled into the canal, by alternating pressure and suction, will gravitate toward the tympanic membrane and show on an X-ray plate. When these tests are negative it is probable that a complete bony atresia is present, and it is best not to interfere.

REPORT OF TWO CASES.

Case 1: Male, white, age 35 years, American born, admitted to the service of U. J. Grim, Illinois Eye and Ear Infirmary, states that he has had difficulty in hearing with the right ear for the past thirty years; no discharge, pain, headache nor dizziness. About twenty-five years ago he was advised to have a growth removed from the right ear.

Examination revealed a bony growth attached to the upper and anterior walls of the external bony canal. A very narrow slit-like

space at the posterior and inferior canal margin permitted the introduction of only a very fine probe. Inspection of the eardrum was therefore impossible. There was no discharge, except for a few epithelial scales which had no odor. Functional tests showed a pure conduction deafness; vestibular reactions were normal. X-ray of the mastoid showed nothing pathologic except obliteration of the canal space.

Under local anesthesia a post-auricular incision was made and after retracting the periosteum a vertical cut was made in the cartilaginous canal and the entire auricle retracted forward. I removed the hyperostosis in one mass with the aid of a small saw and a few strokes with a chisel, without damage to the tympanic membrane. The luxurious growth of granulation tissue which sprung up on the bare bone was cauterized frequently with 25 per cent silver nitrate until the skin bridged across the defect. Recovery was satisfactory, with good cosmetic and functional results.

Case 2: Exostoses and recurrent mastoiditis: Mr. L. S., age 19, American, was admitted to my service at the Illinois Eye and Ear Infirmary on Feb. 21, 1933, with a complaint of right side postauricular discharge, headache and loss of sleep. The past history states that seven years ago he had a severe right side earache with a very scant discharge from the canal. A mastoid operation was performed and the wound drained for three months before it healed. Since then he has had repeated attacks of earache and right side headache, which relieved when pus discharged through the old scar. For the past six months there has been a constant postauricular discharge with recurrent attacks of unilateral headache and frequent loss of sleep.

The general impression was that of an acutely ill patient, temperature 101° F., tongue coated, marked tenderness over the mastoid antrum and attic. A narrow postauricular sinus drained foul pus. Inspection of the external canal was impossible due to a complete bony occlusion of the meatus.

It was evident that this was a case of recurrent mastoiditis with a cholesteatoma but it was difficult to determine the cause of the bony occlusion of the canal. The following suggested itself for consideration: 1. Congenital atresia or exostoses of the canal complicated by an acute suppurative otitis media which subsequently led to surgical intervention on the mastoid and with a neglect to correct the deformity at the time of the operation. 2. Atresia of the canal following a radical mastoid operation where the after-care has been neglected.

At the operation there was noted an absence of the cartilaginous canal and that a bony prominence confluent with the zygoma replaced the bony canal. A fistulous tract about 5 mm. in diameter, noted over the squama and filled with cholesteatomatous material, led directly into the attic. The mastoid process was sclerotic. The middle ear was filled with a cholesteatoma into which the ossicles were embedded. While above, after the removal of the middle ear contents and upper attic wall, it presented a large cavity with a complete exposure of the horizontal canal, cochlea, Eustachian tube, still it was situated about 2.5 cm. above the external meatus. To bring the auricle upward meant causing a deformity and a possible failure in the final results. The removal of the bony mass also presented some seriousness, such as injury to the jugular bulb or to the facial nerve. The creation of a canal was performed by chiseling from the front backwards. There was a slight exposure of the mandibular joint which does not cause him much discomfort. Considering the anomaly present and absence of all operative landmarks, it was good fortune that no exposure of the meninges or injury to the labyrinth or the facial nerve has occurred.

Comment: It is difficult to state if this was a case of congenital atresia or an exostoses. From the history we learn that there was a slight discharge from the ear during the original otitis media, which would favor the consideration of an exostoses. The mastoid operation had possibly caused the atresia to become complete. While the finding of the ossicles indicates an exostoses, still it does not exclude the possibility of a congenital atresia.

However, the following deductions can be drawn: That when a middle ear suppuration develops in a case of atresia of the external canal it is very prone to lead to a mastoiditis; that a simple antrotomy and neglect of the atresia will lead to recurrent attacks of mastoiditis and to a possibility of intracranial complications; that the safest procedure when a mastoiditis does develop in these cases is to perform the modified radical or the complete radical operation.

BIBLIOGRAPHY.

1. HAGENS, E. W.: Malformation of the Auditory Apparatus in the New Born. *Arch. Otolaryng.*, 15:671, May, 1932.
 2. SHAMBAUGH, GEO. E.: *Chicago Laryng. and Otolog. Society Trans.* Discussion on Mechanics of Audition. *Arch. Otolaryng.*, 15:140, Jan., 1932.
- 310 S. Michigan Boulevard.

PRIMARY LUETIC LESION OF THE EXTERNAL EAR. CASE REPORT.*

DR. ROBERT C. COLGAN and DR. SIGMUND S. GREENBAUM,
Philadelphia.

This case is worthy of reporting because of the rarity of a primary lesion of syphilis in the external ear. In searching through the literature of the past twenty-five years, I have been able to find but three similar cases reported. These are:

1912—Massia and Charnet, Paris, one case of chancre on the external ear; Barbier, Lyon (France), one case.

1923—Rotenberg, St. Petersburg, one case of chancre on the concha.



Fig. 1. Primary luetic lesion of external ear.

I have found no cases reported in the United States. However, personal communication with Dr. Abram Straus, of Philadelphia, reveals that he found a chancre of the external ear occurring in a prize fighter twelve years ago, but the case was not reported.

This patient, a colored male, age 42 years, first reported to the ear dispensary of the Graduate Hospital, Sept. 30, 1932. He gave

*Read before the Philadelphia Laryngological Society, Nov. 1, 1932.

Editor's Note: This ms. received in Laryngoscope Office and accepted for publication Nov. 5, 1932.

a history of having noticed a small pimple in his right ear about July 15, which he scratched. At this time his "lady friend" kissed the injured ear in an effort to heal it. In the early part of August the patient noticed the pimple was getting larger, and, although it was neither itchy or painful, a slight serous discharge oozed from the surface. He applied no medication.

On the first examination in the clinic a diagnosis of furuncle was made, due to the presence of a soft, fluctuating mass about the size of a small pea on the tragus (see Fig. 1). This was incised. No free pus drained, but there was a generous exudation of sero-sanguineous material. Yellow oxide of mercury ointment was applied and the patient was told to return on October 4.

At this time the lesion had an angry, irregular and ulcerated surface, and had increased to the size of a cherry. Practically no healing had taken place since the first visit. Suspicion of a specific lesion was aroused due to the local appearance of the lesion with its induration, its failure to heal and the presence of a unilateral enlargement of the anterior cervical lymph nodes.

The patient was referred to the skin dispensary for opinion. Dr. Greenbaum made an examination of the patient and found a maculopapular generalized rash and mucus patches in the mouth. He also examined the aspirated material from the enlarged glands in the neighborhood of the lesion and found spirochete pallida. He made a diagnosis of chancre.

The blood Wassermann requested this same day was reported strongly positive for both Kolmer and Kahn reactions.

The patient has had one injection of neoarsphenomine, but has not returned for further treatment.

Stokes makes this statement: "Every lesion of the skin and mucous or serous surfaces which has refused to heal within ten days, which is indurated and presents a well-marked satellite adenopathy, deserves investigation for the possibility of syphilis."

Grange Building.

INFLUENCE OF TREATMENT ON DEAFNESS IN CHILDREN.*

DR. LAWRENCE K. GUNDRUM, Los Angeles.

We feel that a new era in the study of hearing problems began with the development of electrical instruments of precision for the testing of hearing. These instruments have enlarged two fields of research in which formerly little work has been done, the testing of the hearing of young children and the examining of large groups of individuals. Since we now have the audio-amplifier and the audiometer, we are able to test the hearing of very young children with a great degree of accuracy. The length of time required and the arduous work entailed in the testing of groups has been greatly lessened, so that the testing of school children is now being done in many of the large cities. By testing school children, we can often recognize beginning deafness in its incipency, in many instances before changes have become permanent.

We have always believed that certain diseases were responsible for deafness in children, but as otolaryngologists, we had not verified our belief by accurate measurements. Several years ago I began testing the hearing of all children whom I saw with chronic lesions of the upper respiratory tract. It was found after careful audiometric testing that many children who were brought for other conditions had a definite hearing loss. In 1928¹ my findings were presented before the Pediatrics Section of our State association. Since that time the hearing has been recorded on all children with chronic nose and throat lesions. Two hundred sixty children have been examined at my office with the Jones-Knudsen Audio-Amplifier. Another group of children were tested at the Los Angeles Parent-Teachers' Association Clinic. These children were chosen from the ear, nose and throat clinic, and from this examination some degree of deafness was suspected. Of course, no child was tested without first removing impacted cerumen when present, nor were tests made in the presence of any acute condition of the ear, nose or throat. During the school years 1928-31, 1419 children were examined with the 2A Audiometer. A loss of 9 or more sensation units (7.2 per

*Read before the Eye, Ear, Nose and Throat Section of the California Medical Association at the sixty-first annual session, Pasadena, May 2-5, 1932.

Editor's Note: This ms. received in Laryngoscope Office and accepted for publication Nov. 5, 1932.

cent) in one or both ears was found in 1150 (83.3 per cent) cases. The study therefore includes 1410 children with a definite hearing loss.

An attempt was made to have them return one month after treatment was begun or operation performed and then at intervals of three months for one year. Unfortunately only 243 returned for reexamination.

Table I gives the classification of cases.

TABLE I.

Total number of rechecks.....	243
Number of males.....	141 (58.0%)
Number of females.....	102 (41.5%)
Family history of deafness.....	37 (15.2%)
Personal history of deafness.....	58 (23.8%)
Gradual onset (with history of deafness).....	51 (84.4%)
Sudden onset.....	7 (15.5%)
Conductive deafness.....	213 (87.6%)
Perceptive deafness.....	14 (5.7%)
Mixed deafness.....	16 (6.5%)

It is interesting to note the preponderance of males, which has been a constant finding wherever groups of children have been studied. The youngest child examined was three years of age and the oldest seventeen. The average age was 6.2 years. It was surprising that the deafness was noticed at home in such a small percentage of cases. Twenty-six cases were first noticed by the teacher, many soon after the child entered school. Many of the children were considered inattentive or dull. This was often noticed by both the parents and teachers. We believe that in every case of inattention, the hearing should be carefully measured. For example, a boy eight years of age was brought to our attention, not because of any suspicion of deafness, but because he did not breathe normally. He had failed to make any progress in school and was considered dull. He was found to have a marked hearing impairment in both ears. The hypertrophied tonsils and adenoids were removed. His hearing improved, and within six months he had learned to read and when last heard from he was rapidly gaining a place among his former classmates.

Tinnitus, the symptom which in many adults is more annoying than the deafness, was rare in these cases. It was noticed in only 15 (6 per cent), and then only incidentally. In these 1410 cases it was never the complaint for which relief was sought.

The apparent cause of the deafness and the results of the treatment are given in Table II.

TABLE II—CAUSE OF DEAFNESS.

Hypertrophied and infected tonsils and adenoids.....	171 (70.3%)
Chronic sinusitis.....	24 (9.8%)
Disease of the Eustachian tube (cause undetermined).....	18 (7.3%)
Chronic purulent otitis media.....	9 (3.7%)
Allergy.....	2 (0.8%)
Injuries.....	2 (0.8%)
Mastoiditis with operation.....	2 (0.8%)
Syphilis.....	2 (0.8%)
Tuberculosis.....	1 (0.4%)
Disease of the external canal.....	1 (0.4%)
Measles.....	4 (1.6%)
Pertussis.....	2 (0.8%)
Influenza.....	1 (0.4%)
Scarlet fever.....	3 (1.2%)
Mumps.....	1 (0.4%)
Hearing acuity less.....	26 (10.6%)
Unchanged.....	29 (11.0%)
Improved.....	187 (76.5%)

Wherever deafness was noted, an attempt was made to discover the cause and treatment was instituted. The most favorable results were in those having hypertrophied and infected tonsils and adenoids. Improvement was found in 89 per cent of these cases. In only two uncomplicated cases was the hearing worse on subsequent examinations. After treatment of chronic sinusitis the results were only fair. In eleven the hearing was worse, in five it remained unchanged and in eight it showed improvement. Inflation of the Eustachian tube gave uniformly poor results. Those having discharging ears were treated with Sulzberger's Iodine Powder. The results as far as the discharge was concerned were very good, but for the most part the hearing remained unchanged. In only one case was the hearing markedly improved. In those having general diseases, one syphilitic showed improvement, the others remained unchanged.

The most complete survey of the hearing of school children in any large city was made by Rodin² of San Francisco. All children between the ages of nine and sixteen years, not only of the public schools, but of the parochial schools, were examined. Two years' time was required to make the survey. The statistics of this survey are given in Table III.

TABLE III—SAN FRANCISCO SCHOOLS (RODIN).

Children tested.....	36,191
Those showing loss of 7.2% or more.....	3,427 (9.5%)
Referred to lip reading classes.....	441 (1.2%)
Cases with correctible defects.....	853
Large and infected tonsils and adenoids.....	355 (41.4%)
Discharging ears.....	185 (21.4%)
Impacted cerumen.....	294 (34.4%)
Nose trouble.....	19 (2.2%)

Table IV shows the results of the examination of the children of the Syracuse schools, reported by Laurer.³

TABLE IV—SYRACUSE SCHOOLS (LAURER).

Children tested.....	4,419
Those with impaired hearing.....	491 (11.4%)
Those with hypertrophied and infected tonsils and adenoids.....	326 (66.3%)

Burnap⁴ reported 8 per cent deafness in the Fergus Falls Schools, as shown in Table V.

TABLE V—FERGUS FALLS SCHOOLS (BURNAP).

Children tested.....	1,525
Those with impaired hearing.....	122 (8 %)
Those reporting to physicians.....	40

CAUSES OF DEAFNESS OF THOSE REPORTING.

Infected tonsils and adenoids.....	14 (35 %)
Impacted cerumen.....	3 (7.5%)
Lesion of the cochlea.....	4 (10.0%)
Cause undetermined.....	19 (47.5%)

Under Gardner⁵ in the Los Angeles Schools, 20,042 children have been examined, with 1432 (7.4 per cent) deafness on the second test.

SUMMARY.

Certain conclusions can be drawn from this study. Deafness in childhood is not as uncommon as is often considered. From the hearing examinations made in various parts of the country, it appears that it averages from 7 per cent to 11 per cent in school children. It often begins in the very young and has been detected as early as the age of three. Deafened children offer a much better prognosis than adults, as a rule the younger children show more improvement after treatment. Heredity plays a very small part. Of course, this does not apply to deaf mutes, but in the majority of cases of deafened children there is no familial deafness. Those who will later show otosclerosis have not yet attained the age to manifest it. History, in most instances, is unreliable, especially in children of pre-school age. In many of our most severe cases, the deafness has not been noticed at home. Inattention is the most frequent symptom, while failure in studies is a common result of deafness. Most cases of deafness in children are conductive in type, due to middle ear disease, lesions of the upper respiratory tract causing the greatest number. Hypertrophied and infected tonsils and adenoids are the most frequent cause and after their removal offer the best prognosis. The common cold is a latent source of danger and should not be

regarded as trivial. In infectious diseases, the ear, nose and throat should be carefully watched. Routine inflation of the Eustachian tube in all cases is to be condemned. It may be useful in a few cases, but only in a very few, and then when clearly indicated. The prognosis of all deafness in children depends upon early recognition and prompt treatment. From this study it would seem that the average prognosis for all types is about 75 per cent favorable. The measurement of the hearing of all school children is a goal which we should strive to attain. In this manner many cases are recognized early and if treatment is instituted promptly, much of the deafness in adults can be prevented.

1. GUNDRUM, LAWRENCE K.: Deafness and the Child. *California and Western Medicine*, 31-34, August, 1929.

2. RODIN, FRANK H.: Survey of the Hearing of the School Children of San Francisco. *Archives of Otolaryngology*, 11-463, April, 1930.

3. LAURER, FRANK A.: Hearing Survey Among a Group of Pupils of Syracuse Schools. *Amer. Jour. of Public Health*, 18-1143, Nov., 1928.

4. BURNAP, W. L.: Sense of Hearing Survey of School Children in Fergus Falls. *Minn. Med.*, 12-691, Nov., 1929.

5. From the records of the Medical Department of the Los Angeles Public Schools, 1930-32.

1116 Wilshire Medical Building.

LIPOMA OF THE GLOSSEOPIGLOTTIC SPACE.*

DR. FRANK J. BRIGLIA, Philadelphia.

Before presenting this case, I wish to express my gratitude to my elders of the Coates and Skillern Clinic for the kind opportunity afforded me in its presentation. The preparation has enabled me to divert from a dull and monotonous routine of daily practice to a more interesting field of study which has absolved me from any feeling of guilt in the remembrance of those words spoken by W. W. Story and so often repeated by Dr. John Chalmers DaCosta: "He who, self-sufficient, dares refuse all aid of men, must be a God or fool." I also wish to thank Dr. Tucker and the members of the Bronchoscopic Clinic of the Graduate Hospital for their co-operation and aid.

I have reviewed the literature back to the year 1912 and have been unable to find a similar case reported.

Mrs. P. P., a colored woman, age 56 years, presented herself at the Laryngological Clinic of the Graduate Hospital with a chief complaint of "a lump in her throat" and "difficulty in swallowing and breathing."

Her present illness began three years ago with a "sore throat," examination of which, at this time, by her family physician, resulted in the extraction of her teeth. She was also advised to have her tonsils removed at a later date.

Several months following the extraction of her teeth, the patient experienced sensations of discomfort and fullness in her throat, which assumed, a little later, the form of a "lump" which caused difficulty in swallowing solid foods. As the symptom became progressively worse, she found difficulty in swallowing semisolid foods, and finally liquids.

During the last few weeks she has complained of extreme difficulty in swallowing, with increasing fullness in her throat, simulating the presence of a foreign body which she almost constantly endeavored to swallow. Concomitant with these symptoms she noticed hoarseness, thickness of speech, occasional cervical pain,

*Read before the Philadelphia Laryngological Society, Nov. 1, 1932.

Editor's Note: This ms. received in Laryngoscope Office and accepted for publication, Nov. 5, 1932.

increased salivation, attacks of cough and difficulty in breathing. Weight was lost progressively, although her appetite was good. Food and liquids which she believed to be completely swallowed were frequently ejected from her mouth.

Her remaining history, personal and familial, is essentially negative.

When examined she appeared somewhat undernourished, older than her years, timid and nervous, with an expression of apprehension and anxiety, and indulged almost constantly in the act of swallowing, which appeared to be a difficult process, calling forth with an effort the use of every anatomical structure concerned in the act of deglutition, which was accompanied by an audible sound suggestive of an excessive collection of mucus in the pharynx. With each endeavor there was a peculiar downward nod of the head, sudden closure of the eyes and contracture of the facial muscles. The impression received by the examiner at this time was an incessant unsuccessful attempt on behalf of the patient to swallow an object lodged in her throat. When spoken to she replied in voice which was distant and thick, suggestive of a mouthful of food or saliva. Her words were forced, enunciated with difficulty and distress, and momentarily it appeared she spoke unwillingly. Her breathing was somewhat labored, thick and noisy, characterized by a short, rapid and forced inspiration, to be followed by a prolonged and less difficult expiration.

External examination of the neck showed no evidence of pathologic change. There was neither abnormal swellings, adenopathy nor evidence of tumorous infiltration—special attention being given to the regions of the thyroid gland, thyroid cartilages, hyoid bone and submental triangle.

Intranasal examination proved essentially negative for the presence of gross pathology.

The mucous membrane of the mouth appeared normal with no evidence of petechia nor recent inflammation. All teeth had been extracted and the gums appeared healthy. The tongue showed no pathologic change. The tonsils were small and atrophic.

Examination of the pharynx revealed a single tumorous swelling just posterior to the base of the tongue. From the appearance of its upper visible portion, it resembled in size and shape a small pear with its apex pointed downward toward the larynx, and its base extending just above the dorsum of the tongue. It bobbed up and

down with each attempt to swallow. At no time, however, did it completely disappear from view except when the dorsum of the tongue approximated the palate.

It was encapsulated, regular in contour with a smooth, non-friable surface, and pinkish in color. Blood vessels were clearly seen beneath its membranous lining. No hemorrhagic areas were visible nor could bleeding be induced by touching it with a probe. It completely filled the pharynx, but did not extend into the nasopharynx. When the tongue was fully depressed the base of the tumor almost touched the tip of the uvula.

It appeared to be pedunculated and freely movable, having neither anterior, posterior, lateral nor superior attachments. There was no evidence of infiltration nor acute inflammation in the surrounding structures.

Examination by use of the laryngeal mirror added very little to what was found by direct inspection. The glossoepiglottic space and pyriform spaces were completely occupied by the tumor. The vocal cords and other structures of the larynx could not be seen due to the large size of the tumor.

It was extremely difficult at this time to determine exactly whether the tumor originated from within the larynx or from a structure external to it.

A gloved index finger was passed along the dorsum of the tongue with an endeavor to reach the glossoepiglottic space and determine the relationship of the tumor to the epiglottis. The palpating finger ended in a narrow cul de sac flattened anterioposteriorly with the base and dorsum of the tongue in front and what felt like tumor behind.

The epiglottis could not be palpated. Its absence would have lead one to believe that its position was posterior to the tumor, yet it was possible for the epiglottis to lie anteriorly and incorporated with the tumor in such manner that it could not be detected by the palpating finger.

Further palpation of the tumor and its surrounding territory confirmed those facts already revealed by inspection. No irregularities could be felt; there was no sensation of infiltrating tumorous masses nor thickening of the surrounding structures. Acute pain, tenderness and increased temperature were absent, the patient's only discomfort being a sensation of choking with an attempt to cough and vomit, especially when slight pressure was made upon the tumor.

The pyriform spaces were extremely difficult to reach, no room being allowed for further downward introduction of the finger. The tumor itself felt soft and gave a sensation of fluctuation which was due to its semi-solid nature and rather free mobility. The feel of the "thing" at this time impressed the examiner as being in nature a cystic mass with a thick indurated capsule. No bleeding occurred during palpation. No endeavor was made to make a diagnostic puncture.

The patient was admitted into the hospital and further general physical examination proved negative.

Laboratory examinations in the nature of urinalysis, C.B.C., Wassermanns, etc., proved to be of neither importance nor aid.

All this time to determine the diagnosis of the tumor afforded not only an instructive pastime, but as well opened a large field for speculation as to its course, nature and etiology.

Concerning its point of origin, every anatomical structure in the territory it occupied or within its vicinity was considered, accepted or discarded.

Concerning its nature, every pathological entity capable of assuming its external characteristics was contemplated — those naturally found most frequently being placed at the head of the list and thereby undeservingly being held responsible for a multitude of sins committed by another.

At this time a differential diagnosis of laryngeal tumors may be discussed, but the subject is too expansive and time does not permit. I may mention that those tumors most commonly found in order of frequency are cysts, fibroma and papilloma.

Two positive facts were revealed by examination thus far: 1. The tumor was pedunculated. 2. The tumor was benign, there being no evidence of malignant change.

The patient was then subjected to direct examination by the laryngoscope, which revealed a large benign solitary, freely movable, semi-solid pedunculated tumorous mass in size and shape resembling a small pear and attached by its pedicle to the glossoepiglottic space.

A Lewis snare was applied over the mass around the pedicle and the tumor removed with the snare. This was followed by a negligible oozing of blood from the stump, which stopped readily.

Gross examination of the specimen revealed a lipoma, confirmed by histologic examination.

It weighed 14 gm., was $4\frac{1}{2}$ cm. long, 3 cm. wide and $3\frac{1}{2}$ cm. in thickness.

Three days later the patient was re-examined by the laryngoscope, and it was found that there remained some of the stump of the growth formerly removed. This was removed with a snare and cupped forcep.

Several days later, following the removal of the remaining tissue, the surface of the glossoepiglottic space was smooth, healing complete and recovery uneventful.

734 Wharton Street.

HODGKIN'S DISEASE, LYMPHOSARCOMA AND LEUKEMIA.*

DR. L. F. CRAVER, New York.

There are perhaps two main reasons for the inclusion of such conditions as Hodgkin's disease, the leukemias, lymphosarcoma and allied processes in a discussion devoted to tumors. The reasons are: first, that they are responsive in varying degree to irradiation, as are many tumors; second, that they appear to lie upon the borderline between inflammatory and true neoplastic processes. One who sees a great number of these cases is constantly impressed by the wide range which they cover. We have a large group of typical cases, Hodgkin's disease, leukemia and lymphosarcoma, but at one end of the scale they merge into various inflammatory and atypical processes, while at the other end of the scale they merge into conditions that certainly bear close resemblance to, if they are not actual neoplastic processes.

So, for example, we have typical Hodgkin's disease, and at one end of the scale, atypical Hodgkin's disease and atypical tuberculosis, while towards the neoplastic end of the scale there is Hodgkin's sarcoma, with apparently true metastasis to the bones, lungs and other organs. We have typical leukemia and towards one end of the scale all gradations to various processes, such as those which may represent atypical responses to infection—infectious mononucleosis, agranulocytic angina—while at the other end of the scale there are leukemias which behave like malignant tumor processes—leukosarcoma and chloroma. Moreover, we see transitions between various members of the lymphoblastoma group. Thus, for example, a case of apparently typical lymphosarcoma watched for seven years terminated with typical features of lymphatic leukemia. We frequently see instances of Hodgkin's disease, lymphosarcoma and leukemia in which there is a history of long existing tuberculosis. We see instances in which nodes from the same patient may in part show the structure of Hodgkin's disease and in part the structure of lympho-

*Lecture delivered Oct. 28, 1932, as part of the Symposium on Tumors at the Fifth Graduate Fortnight of the New York Academy of Medicine.

Editor's Note: This ms. received in Laryngoscope Office and accepted for publication, Nov. 9, 1932.

sarcoma. In recent years attention has been called to the onset of myelogenous leukemia under the picture of erythremia. In fact, some authors state that most cases of myelogenous leukemia begin with a stage of polycythemia vera and it is well known that there are cases presenting features of both diseases at the same time.

It may be of interest to present a list of various conditions that are included in or border upon or have to be considered in connection with the lymphoblastomas. Beginning at the inflammatory end of the scale we have chronic lymphadenitis, atypical tuberculosis, atypical Hodgkin's disease; then we pass to typical Hodgkin's disease (designated in Europe chiefly as lymphogranulomatosis, which must be distinguished from lymphogranuloma inguinale), Hodgkin's sarcoma, mycosis fungoides; the two types of lymphosarcoma—reticulum cell lymphosarcoma and malignant lymphocytoma. Then the group of comparatively benign localized or generalized so-called lymphomas or lymphadenomas. Next is lymphatic pseudoleukemia, by which is meant cases presenting the clinical features of chronic lymphatic leukemia but lacking at all times during their course any trace of a leukemic blood count. Then the aleukemic stage of lymphatic leukemia, typical lymphatic leukemia, the lymphatic type of leukosarcoma and chloroma (in which there are also aleukemic forms), occasional cases of mixed myelogenous and lymphatic leukemia, aleukemic stages of myelogenous leukemia, typical myelogenous leukemia, sub-varieties of leukemia such as eosinophilic leukemia, questionable cases of polynuclear leukemia, questionable cases of myelogenous pseudoleukemia, myelogenous leukosarcoma and chloroma (also having aleukemic forms). We have also to consider the recently discussed monocytic leukemia; next, infectious mononucleosis or glandular fever, which in many instances can be distinguished from lymphatic leukemia only by observation of the course of the disease. Agranulocytosis must also be included, since various transitions have been observed between agranulocytosis and myelogenous leukemia. Then we have the cases of combined erythremia and leukemia, true erythremia or polycythemia vera, and some would feel that even pernicious anemia because of certain of its features should be included. Some features of multiple myeloma suggest that it may have some relation to this group. Mickulicz' disease, the peculiar chronic granuloma of the salivary and parotid glands, in some cases seems to bear a relationship to lymphoblastoma. In children we have persistent enlargement of the thymus with transitional forms to true thymoma. By the term thymoma is usually meant the type of thymic tumor having a micro-

scopic structure resembling that of lymphosarcoma. There is also a type of thymic Hodgkin's disease. The leukemic thymoma, a huge tumor of the thymus complicating mainly lymphatic leukemia, particularly in younger people, may be classed with leukosarcoma. Finally thymic carcinoma and lymphoepithelioma must be included in this connection.

So that you see we have a list of thirty-one conditions included in or bordering upon the lymphoblastomatous group of diseases. In this discussion we shall simply point out some of the more important and interesting features of the main members of this group.

In Hodgkin's disease one is certainly impressed with the truth of the axiom that "tuberculosis trails Hodgkin's disease like a shadow." It seems to be pretty well established that neither the human nor the bovine form of tuberculosis can be proved to have direct etiological relationship to Hodgkin's disease. In the last few years the question has been raised about the possible relationship of the avian form of the tubercle bacillus to the etiology of Hodgkin's disease. This is still, however, an open question. It is a striking fact in Hodgkin's disease that it seems to begin always as a localized process. Very frequently it first appears in the cervical nodes, and Warthin has stated that it occurs more frequently on the left side of the neck. We may be permitted to speculate about this statement and raise the question whether that may not mean that the disease has actually begun in the mediastinal or retroperitoneal nodes and by making its way along the thoracic duct, has shown itself first in the left side of the neck. We know well that Hodgkin's disease may make its first appearance in the mediastinal nodes, the thymus or in the retroperitoneal nodes. The symptoms are very variable, depending in large measure on what structures are involved. The symptoms at first may merely be the presence of nodes somewhere. In other cases neurologic symptoms may be the first manifestation of the disease. In others various pressure symptoms may be the first sign of illness. In the mediastinum the pressure may progress to produce the typical Stoke's syndrome. There are cases in which axillary nodes produce secondary edema of the breast so that the case is first mistaken for one of carcinoma of the breast with metastasis to axillary nodes. In the inguinal region one may see the effects of pressure as manifested by edema of the lower extremities or external genitalia. A few years ago we saw two or three cases in which Hodgkin's disease involved the prostate in such a way that the original diagnosis was carcinoma of the prostate. On the other

hand, the symptoms for a long time may be merely the general or toxic symptoms, fever, pruritus, cachexia, et cetera, and some of these may exist for years before adenopathy appears.

The difficulties of diagnosis are many, both clinically and in the laboratory, and one is constantly impressed by the fact that if the case is atypical clinically it is quite likely to be so atypical histologically that the biopsy may fail to give an exact diagnosis.

While in the beginning Hodgkin's disease is always localized, apparently, in practically all cases it later becomes generalized. One of the striking features of the late stages of Hodgkin's disease is the chronic invalidism of the patient, particularly as contrasted with lymphosarcoma. Most of the patients with Hodgkin's disease become chronic invalids, and suffer from cachexia, and practically all at some time in their course have fever.

There is a group of Hodgkin's cases which run the so-called Pel-Ebstein course in which one sees recurrent cycles of febrile periods lasting a week or ten days and completely afebrile periods lasting usually about the same length of time. The patient in the later stages of Hodgkin's disease suffers frequently from drenching sweats. A high proportion of the patients have generalized itching. Various types of skin lesions are seen. Frequently there is a rash almost indistinguishable from scabies.

In recent years more and more attention has been called to bone lesions of Hodgkin's disease. It has of course been known for a long time that at autopsy the bone marrow may be found diffusely involved by lymphogranulomatous tissue. Ziegler was the first, in 1912, to call attention to gross destructive bone lesions in Hodgkin's disease. Dresser, in Boston, and others have pointed out gross bone lesions which may be detected during life by X-ray examination. These lesions at first may be very difficult to detect in a Roentgenograph. It is interesting to recall that seven or eight years ago, when we first began to be aware of the occurrence of these lesions, the clinician was more certain than the Roentgenologist. The clinician felt certain that the tiny, insignificant looking dots of bone rarefaction were of real significance, because he noted that in most cases the patient had exquisite tenderness over the bones at those points, just as do the patients who have metastatic breast carcinoma in bones. Later the enlargement and coalescence of these tiny lesions in the bones gave pictures which left no room for doubt in their interpretation. Up to the present time the highest figures as to incidence of these gross bone lesions which may be detected during

the patient's life run around 15 per cent, but it must be borne in mind that it is only within a comparatively few years that clinicians, in this country at least, have been looking particularly for such lesions, and I feel quite certain that if all cases of Hodgkin's disease could be watched throughout their course, the incidence would be found to run at least as high as 50 per cent if not more.

I have previously indicated the occasional occurrence of neurological symptoms, as the first manifestation of Hodgkin's disease. Nerve structure anywhere may be involved—peripheral nerve trunks, or central nerve system, particularly about the meninges of the cord.

Herpes zoster is an interesting complication of not only Hodgkin's disease but the other lymphoblastomas, and it is very interesting to note that in many instances the band of herpes occurs on the same side of the body and at roughly the same level at which there is then the main bulk of granulomatous tissue.

Blood count in Hodgkin's disease: Various changes in the blood count have been brought forward from time to time as supposedly characteristic of Hodgkin's disease: eosinophilia, increase in transitional cells, increase in mononuclear cells. In our experience there has not seemed to be any characteristic change in the blood of Hodgkin's disease.

Eosinophilia seems rare in our cases. The only change that we have noted, and this we find in somewhat less than half the cases, is a leukocytosis, often around 13,000 to 17,000, occasionally up to 30,000 or 40,000, with a polynucleosis, often up to 90 per cent or more, with no evidence of infection in the ordinary sense.

Lymphosarcoma, like Hodgkin's disease, appears to begin as a localized disease. Its onset seems to occur particularly in one of three regions: the nasopharyngeal ring of lymphoid tissue, the mediastinal nodes or thymus, and in the abdomen, most likely from the gastrointestinal nodes or perhaps the lymphoid tissue of the alimentary tract itself. As contrasted with Hodgkin's disease the nodes usually tend to be more diffuse. This is perhaps to be accounted for by the well known tendency of lymphosarcoma to infiltrate the fat tissue outside of the capsule of the node. It is very striking in lymphosarcoma that the patients tend to remain in much better condition than do those with Hodgkin's disease, and we are often surprised to hear of the unexpected death of a patient a short time after he had visited the clinic. Lymphosarcoma is usually extremely radio-

sensitive. One may see a large mass of lymphosarcoma begin to recede within a day or two after proper irradiation, and within a week or ten days or a little longer the entire mass may have completely disappeared, if the irradiation has been adequate, while in Hodgkin's disease the regression may not begin until ten days or two weeks or more have elapsed following treatment and the full amount of regression may not be attained until a month or six weeks have elapsed. Lymphosarcoma is distinctly a nonsurgical disease, with the possible exception of some cases of intestinal lymphosarcoma. It is so highly cellular and malignant a process that surgical interference usually spells disaster for the patient, and we believe in general that all cases of lymphosarcoma should be treated by means of radiation. We have seen a fatal outcome in lymphosarcoma following a biopsy of a cervical mass. The tumor fungated through the biopsy wound, and the patient died of hemorrhage. If there is somewhere a small discrete node, it may probably be removed safely, but it is inadvisable to attempt to excise a portion of a large diffuse mass.

As for leukemia, I would call your attention to the general distinction which holds between the myelogenous type and the lymphatic type. In the myelogenous form the main feature on physical examination is the large spleen and the myelemic blood count. Many textbooks lead one to infer that the superficial lymph nodes are frequently enlarged in myelogenous leukemia. This is decidedly not the case. In lymphatic leukemia the outstanding feature, as compared with myelogenous leukemia, is the tendency to a generalized uniform discrete adenopathy and to a less degree of enlargement of the spleen. In regard to acute leukemias, there has been much dispute as to the type, whether myelogenous or lymphatic. It is believed by many that what appears to be acute lymphatic leukemia is actually acute myelogenous leukemia. There are others who state that it is not possible or worth while to attempt to make the distinction, as the predominating type of cell is simply a stem cell, not yet differentiated towards the myelocytic or lymphatic type. It is probable that many cases which are called acute leukemia are simply acute exacerbations of previously unrecognized chronic leukemia. In myelogenous leukemia the onset is frequently very insidious and indefinite. Frequently gastrointestinal disturbances are the first symptoms. These may be ascribed mainly to mechanical disturbances caused by the enlargement of the spleen; in other cases there may be actual leukemic infiltration of the gastrointestinal mucosa. Splenomegaly may be the first condition of which the patient becomes aware, and

in the older literature there was considerable discussion about the possible relationship of malaria, which is nowadays discounted.

While there are cases of myelogenous leukemia in which the superficial lymph nodes become enlarged, this is distinctly exceptional. The tendency to hemorrhage is often marked, particularly in the exacerbations of the disease; and in women this may show itself as menorrhagia. We recently treated a physician's wife who was about to be operated upon three years ago for a supposed fibroid, when a routine blood count disclosed the fact that she had myelogenous leukemia. The danger of any surgical procedure, even the extraction of teeth, or the attempt to eliminate infection in the sinuses of a leukemic patient should be stressed.

Tenderness of the bones is an interesting clinical finding in many cases of myelogenous leukemia. We find that during the acute stages of the disease, at least 75 per cent of the patients will have a distinct, even exquisite tenderness over the sternum. When this is limited to a small area it is practically always found at one definite point, which is in the midline opposite the junction of the fifth costal cartilage.

In treating leukemia it is very important to make a careful clinical assessment of the patient's condition. Not alone the white blood count or the basal metabolic rate, but the patient's general condition, size and tenderness of the spleen, the tendency to hemorrhage, the presence of infection or inflammatory complications, especially perisplenitis, social factors, and particularly the level of the red blood count and the hemoglobin must be carefully weighed.

In lymphatic leukemia as contrasted with myelogenous, the fact that the spleen is usually enlarged to a much smaller extent and the almost universal presence of generalized rather uniform enlargement of discrete nodes, which are rubbery in consistence, is very striking. It is in this type of leukemia that one is particularly likely to have various types of skin lesions. Papulovesicular lesions, blebs, bullae, hemorrhagic lesions or actual leukemic nodules or diffuse leukemic infiltrations may be found. It is also in this type of leukemia as well as in the more acute forms that one is more likely to find necrotic lesions of the mucous membranes of the mouth. The tonsils in many cases of chronic lymphatic leukemia are so enlarged and firm that it is obvious they form part of the leukemic process, and it is interesting that while in general the response to radiation on the part of lymphatic leukemia is much less dramatic and satisfactory

than is the case with myelogenous leukemia, yet these tonsil enlargements usually can be made to regress promptly.

We recognize among the cases of chronic lymphatic leukemia a group which we term low-grade lymphatic leukemia, in which the total white count may run low throughout the course. They will sometimes even have a constant leukopenia and the white count may never exceed 15,000 or 17,000. In several of the patients in this group who have a generalized adenopathy, as do other cases of chronic lymphatic leukemia, biopsy of a node is reported as lymphosarcoma. The effect of irradiation of the nodes in these cases is usually seen in a change in the differential count, in that the leukemic type of differential becomes reversed, so to speak, so that the count may become essentially normal. As the disease relapses one may see a gradual change in the differential count, with preponderance of lymphocytes.

Now we come to the whole group of thymic tumors, thymoma or lymphosarcoma, thymic carcinoma and thymic Hodgkin's disease. The earliest symptoms of thymoma may be rather vague. It is of interest that many of the patients first notice some puffiness about the eyelids, particularly on arising in the morning, so that nephritis may be suspected. There may be some fullness in the base of the neck, which may cause a suspicion of goitre, or the patient may simply think that he is getting stout. The face may be somewhat puffy. At this stage there may be rather vague symptoms in the chest, slight discomfort beneath the sternum, perhaps a little dyspnea and a little cough, possibly some fatigue and some loss of weight. There may be nothing on physical examination of the chest to account for these symptoms, but an X-ray film may show the characteristic rectangular shadow capping the pericardium. In the later course of thymoma the increased pressure in the mediastinum causes a characteristic chain of symptoms—cyanosis, dilatation of veins on the chest wall, possibly edema of one or both arms, orthopnea, enlargement of the cervical and axillary lymph nodes, or pleural effusion. At times there may be large sheets of tumor tissue growing over the pleura and pericardium. Typical thymoma is usually a very radio-sensitive disease. It seems sometimes that one may almost create a new disease by treating these cases—in this respect: The original thymic tumor may disappear completely and never recur; the patient may live three or four years without evidence of disease, and then return with late bizarre metastases to bones, particularly about the pelvis, symphysis pubis, and the acetabula, or in the central nervous system.

There seems to be some clinical basis on which to predict the probable radio-sensitivity of thymoma. Those which tend to penetrate the chest wall and produce a mound-like tumor over or at the side of the sternum, and those which produce the type of dilatation of the veins of the chest wall in which there are comparatively few large light blue channels, are likely to belong to the radio-sensitive group. Those which do not produce a mound-like tumor over the sternum, and in which the venous dilatation consists of a pronounced fine network of dark blue channels, will probably be radio-resistant.

The treatment of Hodgkin's disease and lymphosarcoma calls for frequent observation of the patient, to determine the appropriate regional palliative irradiation. We do not follow at the Memorial Hospital a plan of routine irradiation of all the lymph node areas, but attempt to treat the known and presumptive areas of involvement. For example, if a patient comes with enlarged nodes in one side of the neck and the axilla of the same side, both sides of the neck and the affected axilla are irradiated and we also treat the mediastinum and possibly the upper retroperitoneal nodes. Such patients should be frequently examined physically, say at three to six week intervals. Blood counts are done as indicated. X-ray examination of the chest, bones, or gastrointestinal tract is done when indicated. Rest is very important, particularly in the treatment of Hodgkin's disease and leukemia, just as much so as in tuberculosis. Patients do better if they can have out-of-door life and a certain amount of exposure to the sun, but just as in tuberculosis, too rapid or too intense exposure to the sun seems to do harm. Iron and arsenic may be of value, particularly in the interval between cycles of irradiation. For Hodgkin's disease and lymphosarcoma transfusion may be of distinct aid at times, while in leukemia transfusions are of little, if any value, as a rule, and at times actually seem to be detrimental to the patient. Rarely in Hodgkin's disease or lymphosarcoma, particularly in Hodgkin's disease, if the process is limited to one accessible region, it may be justifiable to do a surgical removal of the nodes. In fact, some of our best cases of Hodgkin's disease are those in which the process was discovered when limited to accessible nodes and they were removed surgically, the operation being followed by irradiation of the field. Because of the tendency to bone involvement, orthopedic apparatus may be necessary at times. Some experimentation is being done with the use of avian tuberculin in the treatment of Hodgkin's, but as yet it is too early to report results.

In regard to the principles of irradiation technique in Hodgkin's

disease and lymphosarcoma, various methods and various dosages are advocated. It may be summed up by stating that for the more superficial lesions high or low voltage X-rays or radium at shorter distances may be used. For the deeper lesions, such as the mediastinal or retroperitoneal nodes, gastrointestinal or skeletal lesions, it is necessary, in order to deliver adequate dosage without damaging the skin, to use high voltage X-rays, or the radium pack at longer distances. We tend more and more, however, to use high voltage X-rays, even for the more superficial nodes, because we know, that for the same depth dose, there is less damage to the skin. For the cutaneous lesions and the itching, unfiltered or very lightly filtered low voltage X-rays may be used. Just as in the treatment of carcinoma, it is still unsettled whether the irradiation should be given in single massive doses, or in smaller divided doses. Our present tendency is to use larger total dosage, but with smaller fractions administered at one time.

Memorial Hospital.

A NEW MOUTH GAG WITH INTERCHANGEABLE AND ADJUSTABLE TONGUE DEPRESSORS AND ANESTHETIZING TUBE.*

DR. WALTER STUPKA, Neustadt, Austria.

There are already a great many of various models of mouth gags in the use of ear, nose and throat doctors. No less numerous is the number of the different styles of tongue depressors.

The object of mouth gags combined with tongue depressors is to guarantee that the patient's mouth is kept open during the operation and to prevent the raising of his tongue, as otherwise it would be difficult for the operator to do accurate work.

There are models of mouth gags with tongue depressors, the devisors of which intended to render easier the operative work by providing their models with different improvements, such as an extensible tongue depressor, or a set of various sized tongue spatula, or the addition of a suction and an anesthetizing tube, as for instance the following patterns of mouth gags: Doyen-Mahu's, Foregrave's, Crowe-Davis', B. V. J. Brown's, George D. Wolf's, L. Samengo's and E. R. Lewis'.

In spite of the many constructive varieties and details it becomes evident to everybody who occasionally sifts these models and compares them with one another that they all derive in some way or other from one of the primary types of mouth gags which have become very popular under their designer's name of Brophy, Whitehead, Jansen, Trélat and Joseph Beck. The aforementioned modifications of the primary types of mouth gags do not close the file, for doctors and manufacturers are continuing to invent improvements, some with a view to adapting one or the other type mouth gag to a special operative purpose, while others are trying to construct as simple and uncomplicated an instrument as possible, and to make such instrument fit for any operative work in the mouth, to be performed under varying conditions and in people of all ages.

*The instrument concerned was demonstrated in the course of the meeting of the Laryngological Society of Vienna on March 1, 1932.

Editor's Note: This ms. received in Laryngoscope Office and accepted for publication, Dec. 13, 1932.

To make an almost universal mouth gag was my idea in constructing the mouth gag with tongue depressors and anesthetizing tube described as follows: One of the two principal constructive details of my mouth gag is to keep the patient's lips and his tongue from being pressed against the teeth, and the other is to control the opening of the mouth by two points of support, one of them applying directly to the hard palate behind the alveolar process of the incisor teeth, and the other support pressing down the base of tongue, thus pulling same forward. By such construction the instrument is held firmly in place, avoiding the danger of asphyxia caused by collapse of the tongue when a general anesthetic is given to the patient. The retraction of the tongue by means of one of the interchangeable and adjustable spatula connected with the mouth gag is accomplished in such a way that the assistant surgeon who handles the suction exerts a gentle pull on the lower branch of the gag, with the effect that the tongue is pulled forward and is held firmly in this position, with no possibility of its escaping from underneath the tongue depressor, thus giving the very best insight not only in soft palate but also in tonsil work.

For an exact control of hemorrhages it is indispensable to survey the whole operating field, mainly the lower pole of the tonsillar fossa and the neighboring lingual tonsil where bleedings may originate.

For obtaining easy hold of these bleeding points with instruments for tying blood vessels or with needles for ligaturing around a point, it is necessary that the two branches of the mouth gag open very wide without projecting or interfering parts. The tongue depressors must be made so to allow the doctor to direct them towards the side on which he intends to operate. For that reason the tongue spatula of the mouth gag here considered is constructed so as to swing either to right or left, just enough to free the lower pole of the left or of the right tonsil.

If not needed, the tongue spatula may be adjusted to stay in the median line, the position in which, for instance, adenotomy is done.

Both branches of the mouth gag are delicate and the anesthetizing tube is fixed onto the cranial branch in a way to not interfere with the operator's hands or instruments, its constructive details guaranteeing the largest possible working space.

The illustration shows the frontal aspect of the instrument in a half-open position. The supports for the lower and the upper jaw

are shaped so to accommodate the gag to the physiological prognathism of the superior maxilla. The middle portions of both branches do not run parallel with one another until the mouth gag is wide open. The anesthetizing tube ending at the hard palate support is harbored by same and causes neither loss of working space nor narrowing of the sight. The superior point of support, as for its size and shape, fits close to the hard palate with no scope worthy of mention. The last mentioned constructive peculiarity is very important as the

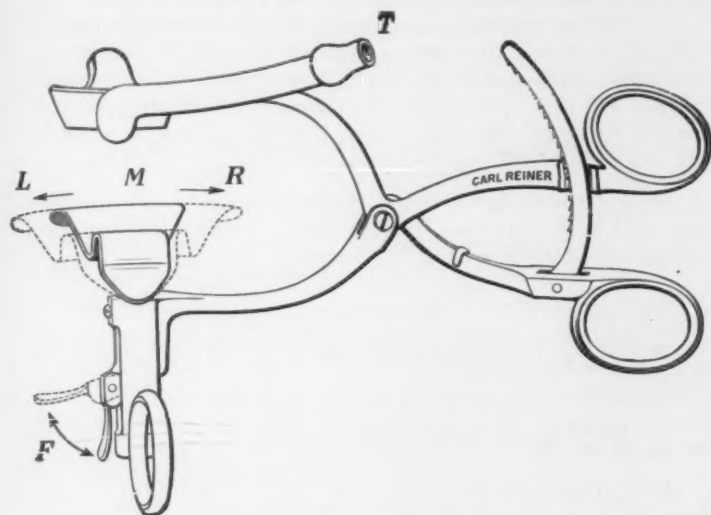


Fig. 1. T—Anesthetizing tube. F—Locking device. L—Tongue depressor on the left side. R—Tongue depressor on the right side. M—Tongue depressor in the median line.

hard palate support has for counter point of fixation the tongue spatula fixed on the base of tongue, thus avoiding any pressure against the lips, the tip of the tongue or even the teeth.

This mouth gag is supplied with a set of five different sized spatula of plain metal, corrugated on their lower surface to prevent slipping, and the suitable size for every individual case may be chosen.

To aid in fitting the tongue depressor to the individual case, a universal testing handle comes with the tongue depressors, so that

size answering the purpose may be selected out of the series of spatula prior to operation.

If the operation is to be done under general anesthesia, the best thing to do is to start narcotization with one of the commonly used masks. It is not until the narcosis is advanced to a certain intensity that the patient's mouth is opened by means of Roser's instrument, the tongue seized and pulled out, and the mouth gag inserted.

The afore described combined mouth gag was used by the writer in a great many cases of all ages and for a number of years. The instrument has proved to be very serviceable, either with local or general anesthesia. The gag was principally used in operations on the tonsils and adenoids, but there is no doubt that it is as well adapted for other operations in the mouth, such as plastic operations on the velum, etc. For that reason I do not hesitate to introduce the described mouth gag for an extensive use.

The instrument described and illustrated herein is manufactured and sold by Carl Reiner, manufacturer of surgical instruments, Vienna, IX, Mariannengasse 17, Austria.

BIBLIOGRAPHY.

LEWIS, E. R.: An Adjustable Mouth Gag Tongue Depressor. *Archiv. Otolaryngol.*, Vol. 7, p. 636, 1928.

SAMENGO, L.: *Semana med.*, Vol. 30, pp. 734-738, 1923.

WOLF, GEORGE D.: A Self-Retaining Palate Retractor. *Jour. A. M. A.*, Vol. 80, pp. 101-102, 1923.

Herzog-Leopoldstr 28/11.

A NEW TONSIL SYRINGE.*

DR. C. W. FOGARTY, St. Paul, Minn.

The complete removal of the tonsils under local anesthesia, with the minimum amount of discomfort to the patient, preserving intact the surrounding structure and avoiding, insofar as possible, primary hemorrhage, requires preoperative preparation, a carefully worked out technique, and instruments so designed as to facilitate the attainment of these desired results.

Never having been successful in finding a syringe wholly meeting my requirements, I have recently designed one with the following features:

A 3 cc. all glass barrel, with a flange of hexagon shape, of chromium metal, instead of side finger rings.

The new double flange makes it possible to grasp the syringe quickly and easily and in the use of an angular needle, as the B. D. Yale, special curved, the syringe can be rotated so as to bring the needle into a new position without disengaging the grip, which is not true of the ring type. The visibility of the operative field is markedly increased over that of the ring type. This is of great advantage in tonsillectomy.

The double flange is of ample depth so that only push and pull pressure against flanges with fingers is necessary to operate syringe and no pressure need be exerted towards barrel, thereby preventing tire of fingers, and allowing nicety of control. The hexagon shape also prevents rolling of syringe on instrument table.

The 3 cc. capacity is large enough to render frequent refilling unnecessary, yet not so large as to be unwieldy and to destroy that sense of balance so essential to accuracy in technique.

The all-glass barrel gives visibility of solution, making unlikely the accidental injection of air, a possible source of infection, which easily occurs with metal barrel syringes.

*From the Department of Otolaryngology, the St. Paul Clinic.

The syringe is equipped with the Luer lok, which permits secure fastening of the needle by half a turn to the right, and no amount of pressure will produce leaking, or force the needle off. At the

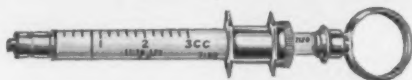


Fig. 1. Syringe.

same time, the needle may be easily removed by half a turn to the left. A large needle tip also greatly adds to the life of the syringe because it hinders breakage.

THE FOGARTY NEEDLE.

The material used for the needle point is gold and is of 21-gauge. The gold tubing extends through the entire length of the needle from the hub to the tip.

This construction offers more resistance against breakage. It prevents air pockets and the collection of foreign matter in the extension. The needle may be much more easily cleaned and less fluid is wasted.

The point is bent at an angle of about 45 degrees; the curve starts about one-eighth-inch above the extension. This angle may be increased or decreased as desired by carefully bending with the finger. The needle point proper is one-half-inch in length. Needle has the Luer lok feature.

PREOPERATIVE PREPARATION.

In patients under 16 years and over 55 years, a hypo of 1 H.M.C. No. 2 is given one hour before operation. Patients over 16 years and under 55 years, if good physical risks, are given 1 H.M.C. No. 2 two hours before operation, and a second one hour before operation.

ANESTHESIA.

A one-half of 1 per cent solution of novocaine is used, to which is added six drops of adrenalin to the ounce, except in patients with arteriosclerosis or hypertension, when less adrenalin is added.

When ready to inject, patient is advised that he will only feel the first two pricks of the needle on either side. First the needle is entered above the superior pole, the needle being carried just through the mucous membrane, external to the capsule and towards the supra-

tonsillar fossa. Then the tongue is tracted forward, outlining a triangle, of which the tongue is the base, the plica and anterior pillar the anterior side, and the tonsil the posterior side. The first injection is made at the base of this triangle, again just entering the needle through the mucous membrane. These two injections are then repeated on the opposite side. The patient is again reassured that the rest of the injections and operation will be free from pain.

The injection is now repeated at the superior pole, only the needle is entered more deeply into the tissue and towards the supratonsillar fossa. If this injection is properly made, the upper pole can be observed pushing out toward the median line. A third injection is then made, anterior to this last one, at the junction of the superior pole and the anterior pillar, and in doing so the needle is carried forwards, downwards and inwards, to force novocaine in between the anterior pillar and the tonsil, taking care not to inject the pillar itself. Next, the injection is again repeated at the base of the tonsil in the same manner as the former one, only the needle is carried a trifle deeper. After repeating these last two injections, on the opposite side, the operation is begun at once.



Fig. 2. Robertson knife.

The tongue being depressed and tracted forward, a Robertson knife is entered in the triangle previously described, the blade being fixed in position immediately behind the anterior pillar and just above its attachment to the tongue. This knife has a blunt point, so that pressure may be exerted to maintain position without danger of tearing up the floor.

The blade is carried upwards, and at the point of fusion of the tonsil and anterior pillar the resection of the mucous membrane begins.

While the cutting edge is directed upwards, the flat surface of the blade is kept in close contact with the tonsil by firm pressure and the contour of the tonsil is closely followed as the blade first is pushed upwards, then over the superior pole, and then pulled downwards between the posterior pillar and tonsil. This resection of the mucous membrane should be accomplished with one continuous sweep, and if properly executed will insure resection of the mucous membrane at its approximate point of attachment to the tonsil.

This preservation of the maximum amount of mucous membrane is, in my opinion, a factor of the greatest importance in the prevention of postoperative deformity.

No fixation of the tonsil is made during this procedure and if properly carried out, the upper pole will be freed and released, so that a tonsil seizing forceps may now be applied. I use a forceps designed by Dr. J. M. Robb, of Detroit. This instrument has no catch, so



Fig. 3. Forceps.

that constant pressure may be maintained without accidentally releasing the grasp on the tonsil. The teeth are not sharp enough to tear out, and on either blade, just posterior to the teeth, are deep serrations that also assist in maintaining a firm grasp on the tonsil. It is the only forceps with which I have been able to exert the desired pull without tearing out.

Taking advantage of this feature, the upper pole having been freed and the tonsil being grasped between the blades, one of which is on the capsular side, strong traction is then made on the tonsil, carrying it away from its bed, and at the same time outlining the points of attachment to it.

Then applying the knife with its blade at almost a right angle to the capsule and with firm pressure against the capsule, all attachments to it are pushed off. Veins and arteries are identified and carefully pushed away at the same time, rather than cutting through them, thus reducing not only immediate but secondary bleeding. This pushing away maneuver is continued until the most inferior portion of the tonsil is freed, including the lymphoid prolongation at its base.

A Tyding snare is then slipped over and the tonsil removed. A snare that can be operated with one hand is necessary as it is most desirable to maintain uninterrupted throughout the entire operation the strong traction to the tonsil, not only because by this traction all attachments of the capsule to its bed stand out in bold relief, but bleeding is controlled and a dry field insured.

St. Peter and Fifth Streets.

IN MEMORIAM

JOHN H. HARTER, M. D.

1888-1933.

Dr. John Howard Harter died May 13, at his home in Seattle, Wash., after an illness of three months. He was a leading plastic surgeon of the Northwest, having acquired special training in London, Paris, New York and Eastern centers, and many patients owe restoration of facial disfigurements to his surgical skill.

He was prominent in the Young Men's Business Club and the Lincoln Club; a member of the Washington Athletic Club and former member of the Seattle Yacht Club. He was one of the advocates of the Cascade Tunnel project, in which he was prominent and much interested. He was well known in medical affairs and associations, being a past President of the Puget Sound Academy of Ophthalmology and Oto-Laryngology; a member of the American Medical Association; King County Medical Society; Washington State Medical Association; Pacific Coast Oto-Ophthalmological Society, American Academy of Ophthalmology and Oto-Laryngology; Public Health League of Washington; Seattle Academy of Surgery, and numerous others. He was also a Fellow of the American College of Surgeons and Harborview Hospital Staff member in plastic surgery.

Born in Dante, Tenn., in 1888, he attended Wittenberg College in Springfield, Ohio, graduating in 1913. In 1916 he graduated from the School of Medicine at Western Reserve University, Cleveland, Ohio, and was licensed to practice in the State of Washington, Jan. 7, 1919. He established his offices in Seattle, later becoming associated with Dr. Harry V. Wurdemann and Dr. Clarence W. Shannon in the practice of eye, ear, nose and throat and plastic surgery.

He is survived by his widow, Carrie Josephine Harter, two sisters in the East, and his only daughter, Mary Louise Harter, of Seattle.

Funeral services were held Monday, May 15, Dr. Cleveland Kliehauer, of the University Christian Church, officiating. Members of the medical profession and other friends crowded the chapel. Burial at Acacia Memorial Mausoleum.

H. V. W.

AMERICAN ACADEMY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY.

The thirty-eighth annual convention of the American Academy of Ophthalmology and Otolaryngology will convene in Boston, Sept. 16 to 22, 1933. Hotel Statler has been selected as headquarters. In keeping with the general progress of things, the program for this meeting is more elaborate than those that have preceded.

The American Board of Otolaryngology will hold an examination in Boston, Saturday, Sept. 16, at the Massachusetts Eye and Ear Infirmary. Those desiring appointments should communicate with the Secretary, Dr. W. P. Wherry, 1500 Medical Arts building, Omaha, Neb.

The American Board for Ophthalmic examinations will hold an examination on Tuesday, Sept. 19, at the Massachusetts Eye and Ear Infirmary. Information may be secured from the Secretary, Dr. W. H. Wilder, 122 South Michigan avenue, Chicago, Ill.

AMERICAN LARYNGOLOGICAL ASSOCIATION.

The fifty-fifth annual congress of the Association was held at the Raleigh Hotel, Washington, D. C., on May 8, 9 and 10, 1933, in connection with the congress of American Physicians and Surgeons. The meeting was very good, fifty-five Fellows being present and fourteen papers being read. Dr. Gordon Berry presided.

The following officers were elected for the ensuing year: President, Dr. George M. Coates, Philadelphia; First Vice-President, Dr. E. Ross Faulkner, New York; Second Vice-President, Dr. Thomas E. Carmody, Denver; Secretary, Dr. William V. Mullin, Cleveland; Treasurer, Dr. James A. Babbitt, Philadelphia; Librarian, Dr. John F. Barnhill, Indianapolis. Members of the Council: Dr. Henry L. Swain, New Haven, Conn.; Dr. Francis R. Packard, Philadelphia; Dr. Dunbar Roy, Atlanta; Dr. Gordon Berry, Worcester, Mass.

The Secretary, Dr. Wm. V. Mullin, 2020 East 93rd street, Cleveland, is preparing the program for next year and will welcome suggestions of papers for the meeting.

THE AMERICAN BOARD OF OTOLARYNGOLOGY.

An examination was held in Milwaukee, Wis., June 12, 1933, during the meeting of the American Medical Association. Forty-eight candidates were examined, of which nine were conditioned or failed.

The Board will hold an examination in Boston, Sept. 16, 1933, just prior to the meeting of the American Academy of Ophthalmology and Otolaryngology. Prospective applicants for certificate should address the Secretary, Dr. W. P. Wherry, 1500 Medical Arts building, Omaha, Neb., for proper application blanks.

AMERICAN OTOLOGICAL SOCIETY, Inc.

The sixty-sixth annual meeting of the American Otological Society, Inc., was held under the presidency of Dr. George L. Tobey, Jr., of Boston, at the Hotel Raleigh, Washington, D. C., May 8 and 9, 1933. The meeting, in the opinion of those who were present, maintained the high standard of preceding meetings in the character of the papers presented and the discussions which followed. There were present fifty-eight active members, four senior members, five honorary members and thirty-six guests. The Society numbers one hundred and twelve active members, thirty-eight senior members and ten honorary members.

Dr. John R. Page, Dr. Samuel J. Crowe, Dr. Thomas J. Harris, Dr. L. W. Dean, Dr. George L. Tobey, Jr., Dr. H. I. Lillie and Dr. Robert Sonnenschein were elected members of the Council for 1933-34.

The Council elected as officers for the ensuing year: Dr. John R. Page, President; Dr. Samuel J. Crowe, Vice-President, and Dr. Thomas J. Harris, Secretary-Treasurer.

JOINT MEETING.

SECTION OF OTO-LARYNGOLOGY OF THE NEW YORK ACADEMY OF MEDICINE
AND
SECTION OF OTO-LARYNGOLOGY OF THE COLLEGE OF PHYSICIANS AND
SURGEONS OF PHILADELPHIA

Wednesday, April 19, 1933.

The Evolution of the Mastoid Tip Cell as a Cell System Separate from the Remainder of the Mastoid Cell and Its Significance (Preliminary Report). Dr. Ralph Almour.

(To be published in a subsequent issue of THE LARYNGOSCOPE.)

DISCUSSION.

DR. OSCAR V. BATSON (Philadelphia): The problem of pneumatic bones is a very interesting one. It is not necessary to go into the matter of pneumatic bones in birds; there are enough problems in the human skull. I would like to suggest that if we accept Wittmaack's theory of the pneumatic cells going into the bone, we have not explained why the cells go into the mastoid process. A parallel problem is present in the frontal sinus. So far as supraorbital extensions of pneumatic cells are concerned, we may have an extension on one side from the frontal, while on the other, three or four ethmoid cells may extend into the similar region. In other words, so far as the skull is concerned, it is symmetrical; however, the sinuses themselves are asymmetrical. It seems that there must be some factor which causes the bone in this area to become pneumatic and asymetrically pneumatic. Perhaps we have something like that in the mastoid process. The bone has a tendency to become pneumatic,—we do not yet know the fundamental reason,—but as in the frontal bone, the pneumatic cells will no doubt go there from any available location. The approach to the mastoid process from the tympanum is a fairly narrow chink between the tegmen antri, the bony canal wall and the capsule of the labyrinth. I see no reason why we should not find pneumatic cells going from the Eustachian tube, tympanum or elsewhere. If the tip has a tendency to become pneumatic, the cells will come from whatever area is available, but it appears that the only area available is the mastoid antrum. That is the finding of Denker, Bezold and others. Every one agrees that the cells all emanate from the antrum. The only new idea is that of Körner, who was shrewd enough to examine radiographically a temporal bone in which the petrous portion was not fused with the squamous. He was able to separate the petromastoid from the squama. In making the study of these two portions he divided the tympanic antrum into two parts, a petrous antrum and a squamous antrum; and he suggested that although we commonly find these fused, a septum between these two might be present in the adult. He suggested that this probably accounted for finding pus in certain cases in the mastoid tip cells, finding a fairly uninvolved group of cells superficially and posterior to the canal, and again finding pus in the ant-

rum. We know, of course, that air cells do not always stop at suture lines; the frontal sinus is an example. It seems to me that Körner's work should be considered along with the presentation and paper we have heard tonight.

I approached Dr. Almour's paper, an abstract of which he was kind enough to send to me, in a most sympathetic fashion. It seemed to be just what we might expect. However, I was not able in twelve temporal bones to demonstrate what he has demonstrated. In some cases I opened the middle ear in the manner which he suggested; in others I took off the tegmen. I endeavored to trace the passage from the tip cells by the use of air, mercury and Gerota's fluid. In the twelve bones examined we might be criticized by Dr. Almour, for some were poorly pneumatic. I was unable to recover color or mercury which I introduced into tip cells from any place except the tympanic antrum. I shall certainly add more experiments to my series. Dr. Almour has kindly indicated for me the point of exit which he has described, and I shall make a serious endeavor to confirm his work on this subject. I think we should always keep in mind that there may be unstable areas in the tympanum from which cells may be derived.

DR. RALPH ALMOUR: When selecting a temporal bone you have to guess whether it is well pneumaticized or not. You have to shave off the cortex before you are sure. After you have done that and are sure you have a fully pneumaticized bone you must expose the antrum, take some plastic material and use enough of it to be sure that you plug off the tympanic antrum; and you can be sure of that when you inject fluid through the external canal and none is seen to exude through the mass of the mastoid cells. After you have done that and use the coloring fluid, you will see it ooze out through the tip cell and cells along the posterior canal wall and outline the tract, the cells of which lead into the so-called secondary antrum.

This is not anything particularly new—I mean new, in the sense that it has not been described before, for Wittmaack has described it histologically; but as far as I know, the anatomical dissection has not been done before. It certainly clears up a great many cases which have puzzled us for a long time. These conditions cannot be explained in any other way except for the fact that there must be a direct connection between the group of cells leading into the mastoid tip and the middle ear, distinct and separate from those that emanate from the mastoid antrum.

Functional Ear Examinations in Patients with Meniere's Syndrome.
Report of Cases. Dr. Page Northington.

(To be published in a subsequent issue of THE LARYNGOSCOPE.)

DISCUSSION.

DR. GEORGE M. COATES: Dr. Northington's paper is a very valuable one, for it calls to our attention the many different causes of the symptoms of Meniere's Syndrome. Many years ago, in 1901 to be exact, Burnett of Philadelphia, at that time Dean of American Otolologists, wrote on this subject and called it Chronic Aural Vertigo. Burnett's theory was that this vertigo came from the middle ear, caused largely by fixation of the stapes in the oval window, causing pressure on the labyrinthine fluid, thus causing this syndrome. We now know a good deal more about this than we did thirty-two years ago, but we still do not know all of it.

In 1861, Meniere described an affection characterized by noises in the ear, vertigo, which might be associated with loss of consciousness, vomiting and in many cases sudden attacks of loss of hearing, from which, as a rule, no recovery was made. This is called Meniere's Disease, which we do not see very often

and it has never been of common occurrence, but I still believe that it is a clinical entity aside from the syndrome which Dr. Northington's paper deals with.

Meniere's Disease, causing vertigo, tinnitus, deafness of sudden onset and ataxia—the main thing being the vertigo and the sudden onset coming on without any previous symptoms, the attacks being frequently repeated—was thought by Meniere to be caused by some circulatory disturbance in the internal ear, such as embolism, thrombosis or hemorrhage. In his particular case he did not find anything at autopsy to account for the sudden deafness, but did find hemorrhage into parts of the vestibular apparatus. Now in Meniere's disease, as based on that case and a few others, the cause was hemorrhage or some disturbance in the blood supply in the labyrinth. The labyrinthine blood supply has been outlined by Siebenman and Shambaugh, and consists of the labyrinthine artery, which is a branch of the basilar artery, entering the labyrinth through the internal auditory meatus. This artery divides into the cochlea-vestibular branch supplying the proximal two-thirds of the cochlea and including the posterior vestibular artery, which supplies the ampula of the posterior semicircular canal and the saccule; and the anterior vestibular artery which supplies the distal one-third of the cochlea, the macula acoustica utriculi, the cristae of the superior canal and of the horizontal canal.

It is, therefore, easy to see that a case presenting definite hearing loss in certain registers, combined with definite loss of reaction to certain vestibular tests, may be postulated as being due to some circulatory disturbance in the branch supplying the organs responsible for these reactions. The vestibular tests then are of value in the first place in differentiating Meniere's disease from Meniere's syndrome; of determining whether there is any definite lesion or whether the symptoms are of toxic origin.

A case I had recently is one of a few interesting ones, that of a man I have had under my care for many years. His attacks of vertigo began two or three years ago and were at first definitely relieved, as was his deafness, by Eustachian tube inflations. After a while, however, this conservative treatment failed any longer to give satisfactory relief and his tonsils were taken out. For a year after that he was entirely free from vertigo and his hearing somewhat improved. About a month ago he was taken suddenly sick with a very severe attack of vertigo following an acute cold in the head, which localized in his right antrum. Following every washing of the antrum, his vertigo is relieved for a time, only to return when the sinus fills up again. This, it seems to me, is a very definite clinical picture of a Meniere's syndrome due to focal infection, although Burnett's theory that relief from pressure of the stapes would ameliorate the symptoms cannot be disregarded.

Another case was that of a physician's wife, who was suddenly taken ill with vertigo, tinnitus, nausea, vomiting and deafness of the right ear, the left ear being negative. Her hearing in the right ear was very like that of the case in the last chart that Dr. Northington showed, although not quite so bad. The low notes were entirely gone, the high notes being relatively good. There had never been any history of aural suppuration or sinusitis. The family history was negative. The vestibular examination showed all findings normal for spontaneous reactions; the rotation tests were practically normal. The caloric test revealed a fair amplitude of nystagmus in the right ear after two minutes. The left ear was quite prompt in reacting. We concluded that the nerves were both active, thus eliminating an acoustic neuroma or serious damage to the vestibular portion of the labyrinth. The absence of shock reaction, sweating and pallor in the presence of an active labyrinth and impaired cochlea suggested a cerebellar disease on the right side beyond the cerebello-pontile angle. We considered this, however, to be considerably modified by the fact that she does give some vertigo reaction as well as some falling reaction and that the impaired hearing could not be explained by such suggested pathology. From the clinical standpoint, these findings point to a local lesion in the cochlea rather than a central lesion. In view of the entire loss of hearing in the right

ear for low tones, it might be inferred that a vascular disturbance had taken place in the modiolar branch of the labyrinthine artery which penetrates the modiolus and supplies the upper one-third of the cochlea (low tone perception). This would seem to be probably a case of Meniere's disease.

Barany groups the condition in which the labyrinth may be affected and vertigo occur under the following heads:

- (a) Acute infectious diseases, influenza, cerebrospinal meningitis.
- (b) Chronic diseases, especially syphilis.
- (c) Constitutional conditions and intoxications. Hemorrhage into the labyrinth (in leukemia, purpura, hemorrhagica, pernicious anemia; chlorosis, thyroid intoxication, arteriosclerosis, etc.
- (d) Tumors and diseases of the central nervous system, cerebellum, pons and fourth ventricle, meningitis, cerebellar abscess, multiple sclerosis, tabes, etc.
- (e) Trauma, fracture of the base, etc.
- (f) Hereditary degenerative diseases and malformations of the internal ear.
- (g) Intoxications, alcohol, nicotine, quinine, salicylic acid group, arsenic.

To these may be added gas emboli in caisson disease and ordinary emboli.

The only way one can possibly make a diagnosis is by a most thorough study of the patient in which the functional tests of the inner ear are most essential. I do not know of any condition where we are more in need of the co-operation of all the other branches of the profession than in Meniere's Syndrome. The patient is frequently in a very distressing condition, and it is often extremely difficult to find out what the cause is. Many cases I believe are toxic, and if you can discover and eliminate all such infections you can improve the case.

I believe with Dr. Northington that some of these cases are purely local and that very conservative treatment will help a great deal; and I believe there are a few cases of Meniere's disease where we have early hemorrhage or an embolus.

Diagnostic and Therapeutic Use of the Roentgen Ray in Laryngeal Neoplasms. Dr. I. Seth Hirsch.

(To be published in a subsequent issue of THE LARYNGOSCOPE.)

DISCUSSION.

DR. FIELDING O. LEWIS: I am very much interested in the subject matter of Dr. Hirsch's paper. Many of his views coincide with those of my own. The roentgen ray as a means of diagnosis has, I think, a very definite value in the early recognition of carcinoma, especially in the vestibule of the larynx, the subglottic area and the post-cricoid area. I find these areas are often very difficult to clearly visualize by the usual forms of examination.

The treatment of laryngeal carcinoma by roentgen ray and radium has been up to now disappointing in my experience. Our results have been, I think, largely the same as those reported by most of the clinics of this country. It was MacKenty who said that "Laryngeal carcinoma must be very difficult to diagnosis or else was little understood by the medical profession," which probably explains the reason that 90 per cent of all cases (I am now speaking of our clinic at the Philadelphia General Hospital) are helpless when first seen. Of these 90 per cent of cases that we have classified as inoperable carcinoma of the larynx have been treated by roentgen ray and radium by all the vari-

ous techniques used, as described here and abroad. All of these have died excepting one patient. This man is still living two years, after his first treatment by roentgen ray. He has, however, had to wear a tracheotomy tube. All the tissues of his neck and including the larynx are fibrotic and thickened. He has not been able to work, although his general health remains the same as it has been for the past two years.

Personally, I am of the opinion that we are not justified, as yet, to advise a patient who has an early intrinsic carcinoma of the larynx to have the condition treated by roentgen ray or radium in view of the brilliant results that are obtained by surgery. If surgical treatment is refused, of course, one must resort to the use of roentgen ray or radium. However, should these agents be ineffectual, the sufferer loses his chance in case of recurrence, since the amount of irradiation that is necessary to favorably effect the growth causes a very marked fibrosis to the neck or else injury to the cartilage of the larynx, which makes satisfactory operation almost impossible.

What the future holds for irradiation therapy in laryngeal carcinoma, no one can foretell. I believe there is a very definite future. With the Coutard technique, which, I believe Dr. Hirsch has been using, I have seen some most brilliant results in carcinoma of the pharynx. We have all seen carcinoma of the larynx treated by irradiation practically disappear and have made us feel optimistic, only to find a few months later, a recurrence much more fulminating than the original or initial lesion. I am still a strong advocate of surgery in operable cases.

DR. GABRIEL TUCKER (Philadelphia): I have enjoyed very much Dr. Hirsch's interesting and very instructive presentation. To us as laryngologists, roentgenology offers a most valuable aid in diagnosis of laryngeal disease. The roentgen examination cannot make a diagnosis for us, of course, but it will give definite information as to the location and extent of the lesion. To those of us who have never seen a fluoroscopic roentgen examination of the larynx, a most pleasant and instructive demonstration will be afforded by witnessing such a study by the roentgenologist using the Pancoast-Pendergrass technic. The patient is instructed to swallow, to whistle, to phonate, and during this time the movements of the structures observed under the fluoroscope. The movements of the soft palate, the base of the tongue, the epiglottis, the ventricles of the larynx and the arytenoids can be seen clearly. At the same time the swallowing function, as determined by an opaque mixture, will give further information. A complete roentgen study of the neck, chest and swallowing function should be routine in every laryngeal case.

I should like to present two lantern slides demonstrating some of the phases of roentgen diagnosis in laryngeal disease. In the first case a man, 56 years of age, who had been hoarse for six months, showed on mirror examination of the larynx, a lesion of the anterior end of the right cord. X-ray examination of the neck and chest showed a lesion of the larynx and evidence of pulmonary tuberculosis. The roentgenologist made a diagnosis of laryngeal tuberculosis. The laryngologist, from the mirror appearance of the larynx, made a diagnosis of cancer of the larynx. Direct examination and biopsy proved that both were right. The section removed from the larynx showed both cancer and tuberculosis.

The next slide is of a patient who had been hoarse for three months with difficulty in swallowing for about the same period. Mirror examination of the larynx showed a small well defined lesion involving the anterior end of the cord. Mirror appearance was suggestive of cancer. X-ray examination showed a lesion of the larynx, and the swallowing function showed the lodgement of a capsule in the middle third of the esophagus. On direct examination tissue was removed from the larynx, which was proved to be basal cell cancer. On esophagoscopy an extensive ulcerative lesion of the mid-thoracic esophagus was found which proved to be the usual type of esophageal cancer. This patient had cancer of the larynx of one type and cancer of the esophagus of another type at the same time. The probability is that neither

was metastatic from the other. The roentgen examination is invaluable in the diagnosis of disease of the larynx and throat. The final diagnosis, however, should be made by direct examination and biopsy.

DR. HARMON SMITH: It is the experience of those who have operated as well as of those who have observed operations by others that on the removal of cancer it has always been found to extend far beyond the bounds deducted from laryngoscopy. One often stands amazed at the extent and penetration of what appeared to be a circumscribed malignant growth. From what has been so clearly demonstrated in Dr. Hirsch's radiograms, one should certainly take advantage of this aid in diagnosis and if for no other reason than to guide our method of operative procedure, just as we would do in sinus cases, we should avail ourselves of it in every instance. The extent of infiltrated tissue adjacent to the growth clearly demonstrates the advisability of employing the X-ray before operation.

As to the therapeutic value of irradiation, I am in complete agreement with the statement of Dr. Lewis. It is only in those cases considered inoperable by the surgeon that I would advocate the employment of either radium or X-rays. Unquestionably for patients with extensive involvement, some of whom refuse operation, we must avail ourselves of some means to quiet their mental states by applying a therapeutic agent from which the unfortunate deducts that something is being done, and the only relief now available is the use of X-rays or radium. The subject is still too new for us to stem it by saying that X-rays or radium will do no good and it still remains a question to be determined by subsequent events.

I always took issue with Dr. MacKenty and still do so on the need for doing a biopsy before performing a laryngectomy. I think that any surgeon who operates without it is taking chances and I also believe that many larynges have been removed for cancer, wherein the neoplasm may have been of lesser malignancy and which the microscope would have cleared up.

DR. LOUIS H. CLERF (Philadelphia): My views regarding the handling of cases of carcinoma of the larynx coincide with those of Dr. Fielding O. Lewis. In my experience the results secured by irradiation therapy have not been particularly satisfactory, certainly they cannot begin to approach the excellent results secured by surgery in operable cases. In cases of intrinsic carcinoma I do not favor laryngectomy; in fact, I am of the opinion that a radically performed thyrotomy or laryngofissure is almost as productive of good results as in laryngectomy in these cases.

DR. I. S. HIRSCH, closing: The subject is still an open one. I did not expect that this contribution of mine would settle the problem. Only time and considerable experience can do this. Unfortunately as our institutions are now organized and equipped for cancer therapy, it is not possible to get a thorough clinical test of this method. For many large laryngological services have no radiation department, while smaller institutions, like ours, with limited material have complete radiation equipment. If the large institutions would install the proper equipment and organize to give these methods the proper clinical tests through the co-operative service of the laryngologists, pathologists and roentgenologists, much might be accomplished with this disease.

THE NEW YORK ACADEMY OF MEDICINE.

SECTION OF OTO-LARYNGOLOGY.

May 17, 1933.

The Tuberculous Larynx and Uphill Feeding. Dr. C. D. Van Wagenen.

(To be published in a subsequent issue of THE LARYNGOSCOPE.)

A New Dilator for the Pharyngeal Orifice of the Eustachian Tube. Dr. L. K. Pittman.

(To be published in a subsequent issue of THE LARYNGOSCOPE.)

Tracheofistulization for Pulmonary Catheterization. Dr. M. J. Mandelbaum.

(To be published in a subsequent issue of THE LARYNGOSCOPE.)

DISCUSSION.

DR. H. H. FORBES: I am not familiar with this form of treatment. Of course, it is intended more for chronic cases, but I talked with Dr. Mandelbaum before the meeting and this case is one where he found on bronchoscopic examination incrustation so adherent to the tracheal wall that it was impossible for treatment other than something of this sort. I don't feel in a position to criticize it, but in certain cases it would seem to be an addition to our remedial measures.

DR. MYERSON: I think Dr. Mandelbaum should be complimented for his pioneering efforts. But in the matter of tracheal fistulization for the treatment of suppuration in the broncho pulmonary tract, I find myself in the position of one who might encounter a gastroenterologist who would advocate gastrotomy for washing out the patient's stomach. If this type of treatment can cure patients for whom no other treatment is known, then and only then would it be justified, but I cannot see that opening the trachea for the treatment of a suppurative focus in the lung is anything but dangerous. We know it is a serious matter when we perform a tracheotomy and to do this for therapeutic purposes when you cannot promise anything more than is given to the patient by other means is not justified. I believe that the method can receive nothing but condemnation.

The Use of the Fresh Sheep Head for Teaching the Technic of the Submucous Resection of the Nasal Septum. Dr. Wallace Morrison.

(To be published in a subsequent issue of THE LARYNGOSCOPE.)

Case Presentation of Brain Abscesses Originating in Otorhinological Foci. Dr. Leo M. Davidoff.

(To be published in a subsequent issue of THE LARYNGOSCOPE.)

Report of Two Cases of Neoplasm in the External Auditory Canal. Operation. Recovery. Dr. Hugh B. Blackwell.

(To be published in a subsequent issue of THE LARYNGOSCOPE.)

DISCUSSION.

DR. G. ALLEN ROBINSON: Malignant tumors of the external auditory canal and middle ear are rare. New growths should be suspected in meatal dermatitis not yielding to usual medications. Biopsy should be done. Severe pain, facial paralysis and granulations are symptoms of carcinoma of the middle ear. Radium is a valuable adjunct to surgery in the treatment of malignant tumors of the external auditory canal and middle ear.

The following table is a brief classification of tumors of the ear:

I. Benign: 1. Keloid. 2. Chondroma. 3. Osteoma. 4. Angioma. 5. Lymphangioma. 6. Granuloma: A. Specific—1. Tuberculous; 2. Syphilitic. B. Non-specific. 7. Cysts of Auricle. 8. Congenital Malformations.

II. Malignant: 1. Carcinoma: A. Basal-celled; B. Squamous-celled; C. Adenoid cystic epithelioma. 2. Angio-endothelioma. 3. Sarcoma (primary or metastatic). 4. Carcinoma Nasopharynx involving Eustachian Tube.

Acute Mastoiditis Complicated with Septic Leucopenia and Local Lesions of the Lips, Nasal Orifices and Pharynx Resembling Those of Agranulocytosis. Report of the Case. Dr. A. J. Herzig.

(To be published in a subsequent issue of THE LARYNGOSCOPE.)

DISCUSSION.

DR. J. PINCUS (by invitation): This case is very interesting from many angles. My conception of the blood picture associated with this acute mastoiditis was that we were dealing with an infection which had irritated the bone marrow and diminished the patient's resistance to such a point that we received a negative response in the bone marrow. From the blood picture that was found I said: "The quicker we open the mastoid and remove the focus of infection, the better the chance of recovery for the patient," for I differentiated this condition from true agranulocytosis by the fact that immature polynuclear cells were found in the blood smear. In all cases of true agranulocytosis that I have seen the white count ranged from 500 cells down to 100 cells, and the differential count from 90—100 per cent lymphocytes. During the past three years I have seen nine cases of true agranulocytosis, one of whom is alive today; this one was treated with blood transfusions, injections of adenine sulphate and K 96 (pentose nucleotide). Further proof that this case was one of infectious leucopenia and not true agranulocytosis was in the fact that the patient responded very favorably to the operation of mastoidectomy and the blood picture changed within twenty-four hours, rising to 6000 white cells and showing a diminution in the number of immature polynuclear cells. This improvement was steady and the blood picture became normal as this improvement progressed to full recovery. The lesson to be learned from this case is that in these severe cases of infection with leucopenia and immature polys in the blood smear, the quicker the surgeon goes in and removes the focus of infection the better are the chances for the patient.

Recovery After Streptococcic Meningitis Following Otitic Sepsis. Dr. Louis Kleinfeld.

(To be published in a subsequent issue of THE LARYNGOSCOPE.)

DISCUSSION.

DR. LOUIS KLEINFELD: As for lumbar puncture, we did these mainly for diagnostic, not therapeutic purposes. The surgical procedures were done as indicated by the patient's symptoms—jugular ligation, irrigation of jugular bulb, etc.—and not by the presence of the meningitis per se.

Neutropenia. Dr. Paul Reznikoff.

(To be published in a subsequent issue of THE LARYNGOSCOPE.)

The Metabolic Preparation of Patients for Laryngectomy and Their Post-Operative Care. Dr. H. A. Houghton.

(To be published in a subsequent issue of THE LARYNGOSCOPE.)

DISCUSSION.

DR. ARTHUR S. WILSON: Dr. Houghton has covered the subject so well that I have very little to say. We all have operations to perform on patients who have been suffering for a long time and present the usual degenerative changes in the blood vessels and heart. These people need medical care as well as laryngectomy patients. The experience I have had with this type of operations—laryngectomies—in my association with Dr. MacKenty, has impressed upon me the fact that any operation which produces such a profound change in the patient as laryngectomy cannot succeed in any successive number of cases without proper metabolic care. The changes apparently particularly affect the pancreas, etc.

This paper is the most complete that I have listened to on this subject.

BOOK REVIEW.

Diet in Sinus Infections and Colds. By Egon V. Ullmann, M.D. Formerly special lecturer for Biology at the Oregon State College; Instructor at the First Medical Clinic at the University of Vienna; Demonstrator at the Laryngological Clinic (Prof. Hajek) at the University of Vienna; Asst. Physician at the Otolaryngological Clinic (Prof. Neumann) at the University of Vienna; Member of the Research Staff of the State Serum Institute of Austria. Recipes and Menus by Elza Mez. 166 pages. The Macmillan Co., New York. 1933. Price \$2.00.

This book is in keeping with the present trend of thought in otolaryngology which aims to consider the upper respiratory tract as a part of the body as a whole rather than a separate entity. Of the various daily contacts the individual makes with his environment, none has such an influence on his physical welfare as his food intake. Its influence on the chemical constitution of the individual cell is receiving more and more attention. The feeling is that as the individual cell goes so goes a community of cells, which in turn manifests itself in body behaviour. Out of body behaviour results health, illness or death, which represents the book of the individual's life.

As the author well states in his introduction, there will always be patients who must submit to surgery. The age old principles of surgery ventilation and drainage will ever be in need of observance. But the individual must of necessity build a defense against his present environment which includes air as well as land and in doing so his daily food intake represents his most important weapon.

The opening chapter suggests that acidosis and alkalosis represents the foundation on which the author builds. The author, however, makes clear that in using the term acidosis he does not mean a condition which up to lately has been called acidosis by the medical profession and which implies a disturbance of the acid base equilibrium of the blood. Rather he refers to a depletion of alkali reserve by a surplus of acid derived from a food showing a surplus of acid constituents.

The subject of diet is approached from the viewpoint of proteins, bread, potatoes, fruits, spices, spicy vegetables and fats, a chapter being devoted to each one of these. An excess intake of alkaline ash food over acid ash food is advised. The author lays considerable emphasis upon the sodium calcium relationship, his conclusion being that if the salt intake is reduced to a minimum, calcium metabolism will swing to normal.

The diet approach recommended is directed to counteract acidosis to increase the effect of calcium in the system and to prevent an eventual lack of vitamins. This is presented in chapters on what to eat, when to eat, the preparation of food and how long shall the diet be continued.

An important chapter from the author's viewpoint carries the heading, "Testing the Urine for Acidity and Chlorides." In view of the fact that the author considers the urine an index to dietetic treatment rather than the upper respiratory tract, this chapter seems necessary. The book closes with an appendix in which one finds recipes and menus.

Whether or not one agrees with the author in his choice of the acidosis and alkalosis theory and the sodium calcium balance, one must admit that such a book as the author presents is very much needed in otolaryngology, in that it calls attention to the fact that the chemical make-up of body tissues is as important as the microorganism, for without suitable soil microorganism growth is less apt to manifest itself in clinical illness. The book of 166 pages is written in a pleasing style. Its reading leaves one with a number of interesting thoughts.

—D. C. J.

Just Off The Press

"The Modern Conception of Deafness"

by

Harold Hays, M.D., F.A.C.S.

New York

This small, handy volume is a scientific treatise on the subject of Deafness, its newer conceptions of anatomy and physiology, causation, symptoms and treatment; with special chapters on its social and economic problems, lip-reading, etc., by recognized leaders in these special fields.

The book is written in language simple enough to be understood by the layman as well as the physician and should be in the hands of every otologist, layman, and teacher of the deaf.

Price \$2.00

THE LARYNGOSCOPE

Publishers

912 South Kingshighway

St. Louis, Mo.

N. B.: Any and all profit on this book will be donated to Central Institute for the Deaf, St. Louis

THE LARYNGOSCOPE
912 South Kingshighway,
St. Louis, Mo.

Gentlemen:

Enclosed please find check for \$..... for..... copies of
"THE MODERN CONCEPTION OF DEAFNESS" by Dr. Harold Hays.

NAME

STREET

City..... State.....

Kindly mention THE LARYNGOSCOPE when communicating with advertisers.

